ESTTA Tracking number: **ESTTA464691**

Filing date: **03/30/2012**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

Proceeding	92054809
Party	Defendant Jeddy Ventures LLC dba SerialComm
Correspondence Address	PANGIOTA BETTY TUFARIELLO TINTELLECTULAW THE LAW OFFICE OF P B TUFARIELLO PC 2 LITTLE HARBOR ROAD MT SINAI, NY 11766 UNITED STATES betty@intellectulaw.com
Submission	Motion to Suspend for Civil Action
Filer's Name	Panagiota Betty Tufariello
Filer's e-mail	betty@intellectulaw.com
Signature	/pbtufariello/
Date	03/30/2012
Attachments	MOTION TO SUSPEND FOR CIVIL ACTION - CANC 92054809.pdf (3 pages)(96477 bytes) AMENDED COMPLAINTAS FILED WITH THE COURT ON MARCH 26 2012.pdf (36 pages)(226401 bytes) Exhibits to Amended Complaint - Part 1.pdf (28 pages)(2385508 bytes) Exhibits to Amended Complaint - Part 2.pdf (14 pages)(8609897 bytes) Exhibits to Amended Complaint - Part 3.pdf (14 pages)(6233974 bytes) Exhibits to Amended Complaint - Part 4.pdf (14 pages)(7814174 bytes) Exhibits to Amended Complaint - Part 5.pdf (34 pages)(6964239 bytes)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

----------X

COMMFRONT COMMUNICATIONS PTE. LTD.
a/k/a COMMFRONT,

Cancellation No. 92054809

Plaintiff/PETITIONER,

-against-

JEDDY VENTURES LLC d/b/a SERIALCOMM,

Defendant/RESPONDENT.

----------X

MOTION TO SUSPEND FOR CIVIL ACTION

Respondent JEDDY VENTURES LLC d/b/a SERIALCOMM (hereinafter "Respondent"), by and through its attorneys INTELLECTULAW, LAW OFFICES OF P.B. TUFARIELLO, P.C., hereby requests a suspension of these proceedings pending the outcome of a civil action styled *Jeddy Ventures LLC and Sima S. Enterprises LLC v. Commfront Communication Pte. Ltd.*, Case No. 11-cv-5710(DRH)(GRB)(hereinafter "the Action"), currently in the Eastern District of New York, in which Respondent is one of the plaintiffs/counterclaim defendants and Petitioner COMMFRONT COMMUNICATIONS PTE. LTD. a/k/a COMMFRONT (hereinafter "Petitioner") is the defendant/counterclaim plaintiff. A copy of the Amended Complaint in the Action is attached hereto for the Board's reference.

Petitioner, by and through its counsel, Mark J. Ingber, Esq., is in agreement with the present request.

Respondent has provided an e-mail address herewith for itself and for the opposing party so that any order on this motion may be issued electronically by the Board.

Respectfully Submitted,

INTELLECTULAW
THE LAW OFFICES OF P.B. TUFARIELLO, P.C.

Dated: 03/30/2012

Panagiota Betty Tufariello

Panagiota Betty Tufariello, Esq.
25 Little Harbor Road
Mt. Sinai, NY 11766
Tel.: (631) 476-8734
Fax: (631) 476-8737
Email: betty@intellectulaw.com

Attorneys for Respondent
JEDDY VENTURES LLC

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing MOTION TO SUSPEND FOR CIVIL ACTION, has been filed with the T.T.A.B. via E.S.T.T.A. and served upon the following attorneys for the Petitioner via Electronic Mail:

Mark J. Ingber, Esq.
THE INGBER LAW FIRM
181 Millburn Avenue, Suite 202
Millburn, NJ 07041
ingber.law@verizon.net

on Friday, March 30, 2012

Panagiota Betty Tufariello, Esq.

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

JEDDY VENTURES, LLC, and SIMA S. ENTERPRISES, LLC **Plaintiffs,** **v.** **COMMFRONT COMMUNICATIONS PTE. LTD ,** **Defendant.**	**Case No. 11-CV-5710(DRH)(GRB)** **AMENDED (FIRST) COMPLAINT FOR DECLARATORY JUDGEMENT AND JURY TRIAL**

NOW COME Plaintiffs, JEDDY VENTURES LLC and SIMA S. ENTERPRISES LLC (hereinafter collectively "Plaintiffs"), by and through their undersigned attorneys, INTELLECTULAW℠, The Law Offices of P.B. Tufariello, P.C., on their behalf , and for their First Amended Complaint, against the above named Defendant COMMFRONT COMMUNICATIONS PTE. LTD, allege and aver as follows:

PARTIES

1. Plaintiff, JEDDY VENTURES LLC is a limited liability company duly organized and existing under the laws of the state of New Jersey, having a regular and established place of business at 1298 Evans Road, Wall Township, New Jersey 07719.
2. Plaintiff SIMA S. ENTERPRISES LLC is a limited liability company duly organized and existing under the laws of the state of New Jersey, having a regular and established place of business at 1298 Evans Road, Wall Township, New Jersey 07719.
3. Upon information and belief, Defendant COMMUNICATIONS PTE. LTD (hereinafter "Defendant") is a company organized and existing under the laws of the sovereign nation of Singapore and having a place of business at both 50 Tagore Lane, #05-50K, Entrepreneur Centre SG, Singapore 787494 and at P.O. Box 1893, Rockville, MD 20849,

USA, as well as at 13 Lawngate Ct. Potomac, MD 20854-5508.

JURISDICTION AND VENUE

4. This Court has subject matter jurisdiction of this action on the following basis:

   a. Under 28 U.S.C. §§ 2201-02 , the Federal Declaratory Judgement Act;

   b. Under 28 U.S.C. § 1331 since the underlying issues raised in this action arise under the Laws of the United States, *i.e.*, The Copyright Laws of the United States, 17 U.S.C. § 501 *et. seq*. and the Lanham Act, 15 U.S.C. §§s 1114, and 1125 *et seq*.;

   c. Under 28 U.S.C. § 1338 since the underlying issues raised this action arise under the Copyright Laws of the United States, 17 U.S.C. § 501 *et. seq*.; and the Trademark and Unfair Competition Laws of the United States, *i.e.*, the Lanham Act, 15 U.S.C. §§s 1114 and 1125 *et. seq.* ;

   d. Under 15 U.S.C. § 1121 since the underlying issues raised in this action involves questions arising under the Trademark Laws of the United States, Lanham Act, 15 U.S.C. §§s 1114 and 1125 *et. seq.*; and

   e. Under 28 U.S.C. § 1367(a) since this action alleges state law violations that are part of the same case or controversy as those claims arising under the laws of the United States.

5. Personal jurisdiction over Defendant is vested in this Court under N.Y. C.P.L.R. § 302(a) in view of the fact that: a) upon information and belief, Defendant is a foreign corporation which operates a website that offers electronic devices and accessories for sale to New York consumers, permits New York consumers to purchase such electronic devices and accessories, and facilitates the shipment of such electronic devices and accessories into the state of New York from either Singapore or Maryland; b) the claims alleged arise from acts and conduct both Plaintiffs and Defendant purposefully direct towards New

York residents; c) Defendant has availed itself of the jurisdiction of this Court, by filing an Answer and Counterclaims (Doc. No. 4) in response to Plaintiffs' Complaint (Doc. No. 1), without service of said Complaint upon Defendant, whether personal or otherwise; and d) Defendant affirmatively waived any challenge to this Court's jurisdiction over Defendant's person, during the parties' March 2, 2012 Hearing with the Court.

6. Venue is proper in the United States District Court for the Eastern District of New York, pursuant to 28 U.S.C. §§s 1400(a) and 1391(b) -(c) since Defendant is found in this district, and a substantial portion of the harm sought to be avoided , as well as a substantial part of the events and omissions giving rise to the claims asserted herein, occurred within this district.

7. Venue is also proper in the United States District Court for the Eastern District of New York, pursuant to 28 U.S.C. § 1391(d) since Defendant is an alien corporation.

8. Finally, venue is proper in the United States District Court for the Eastern District of New York because Defendant has availed itself of the jurisdiction of this Court, by filing an Answer and Counterclaims (Doc. No. 4) in response to Plaintiffs' Complaint (Doc. No. 1), without service of said Complaint upon Defendant by Plaintiff, whether personally or otherwise, and Defendant affirmatively waived any challenge to this Court's jurisdiction over Defendant's person or for improper venue, during the parties' March 2, 2012 Hearing with the Court.

FACTS COMMON TO ALL CLAIMS

I. JEDDY VENTURES LLC.

9. Plaintiff Jeddy Ventures LLC (hereinafter "Jeddy") was established in 2009.

10. Jeddy is also known as SERIALCOMM.

11. Jeddy is a manufacturer, wholesaler, and retailer of commercial and industrial data communication equipment such as converters, isolators, suppressors, serial repeaters, USB adapters, fiber optic converters and various other electronic accessories.

12. Jeddy's products are fully certified and come with a 30-day unconditional return guarantee as well as a 5 year manufacturer's warranty.

13. Jeddy's products are of the utmost high quality, something that is particularly important in view of the fact that such products are used to interface expensive equipment.

14. Jeddy 's products are industry proven and used by thousands of companies world wide.

15. Some of Jeddy's customers include but are not limited to, Allied Electronics, Comcast Corp., Honeywell Corp. NASA, and the U.S. Navy.

16. Jeddy is the owner of all rights, title and interest to the U.S. Trademark Registration No. 3,924,759 for the mark SERIAL COMM DATA CONVERSION EXPERTS AND DESIGN, for use in connection with "electronic and optical communications instruments and components, namely serial data converters and repeaters, optical transmitters, optical receivers, optical data links, optical transceivers, digital transmitters; ethernet and fiber-optic conversion products, namely, Serial Data Converters, Serial Data Repeaters, Ethernet Switches, Ethernet Data Converters, and Fiber Optic Media Converters." A copy of the U.S. Trademark Registration No. 3,924,759 certificate is annexed hereto as **Exhibit 1**.

17. Jeddy is also the owner of all rights title and interest to the U.S. Trademark Application Serial No. 85/145,383 for the word mark SERIALCOMM for use in connection with data communications equipment and software, namely, computer software for network communication, serial data converters, Ethernet and fiber-optic repeaters, namely, RS-232C, RS-485 and RS-422; Ethernet and fiber-optic software and equipment, namely, serial data converters and repeaters and computer software for network communication. A copy of a computer screen shot showing the latest status information regarding Jeddy's

U.S. Trademark Application Serial No. 85/145,383, as secured from www.tarr.uspto.gov is annexed hereto as **Exhibit 2**.

18. Jeddy has been using the marks SERIALCOMM and SERIALCOMM DATA CONVERSION EXPERTS AND DESIGN (hereinafter collectively the "SERIALCOMM Marks") in commerce since at least as early as May 15, 2009. Copies of computer screen shots setting forth specimens showing Jeddy's use of the marks SERIALCOMM and SERIALCOMM DATA CONVERSION EXPERTS AND DESIGN in commerce are annexed hereto as **Exhibits 3** and **4.**

19. Jeddy is the owner of all rights title and interest to the domain name www.serialcomm.com .

20. Jeddy uses its domain name www.serialcomm.com to operate a website through which it offers its internet retail and wholesale sales services to the public at large, including but not limited to residents within the state of New York, in connection with electronic and optical communications instruments and components, namely serial data converters and repeaters, optical transmitters, optical receivers, optical data links, optical transceivers, digital transmitters; ethernet and fiber-optic conversion version products, namely, serial data converters, serial data repeaters, ethernet switches, ethernet data converters, and fiber optic media converters. Copies of two computer screen shots showing two pages of Jeddy's website www.serialcomm.com are annexed hereto as **Exhibits 3** and **4** respectively.

21. Since 2009, Jeddy has incurred a significant amount in advertising costs and expenses advertising its trademarks in connection with electronic and optical communications instruments and components, namely serial data converters and repeaters, optical transmitters, optical receivers, optical data links, optical transceivers, digital transmitters, ethernet and fiber-optic conversion products, namely, serial data converters, serial data repeaters, ethernet switches, ethernet data converters, and fiber optic media converters.

22. Specifically, in the last two years alone, Jeddy has expended at least one hundred thousand dollars ($100,000), in connection with internet advertising of its goods and services in the U.S. and abroad.

23. As a result Jeddy has acquired many customers including but not limited to, such well known companies as Allied Electronics, Comcast Corp., Honeywell Corp. NASA, and the U.S. Navy.

24. Further, as a result of its marketing, advertising and promotion of its trademarks in connection with its goods and services both in the U.S. market and abroad, Jeddy is becoming known as SERIALCOMM, the source of electronic and optical communications instruments and components, namely serial data converters and repeaters, optical transmitters, optical receivers, optical data links, optical transceivers, digital transmitters; ethernet and fiber-optic conversion version products, namely, serial data converters, serial data repeaters, ethernet switches, ethernet data converters, and fiber optic media converters.

25. In addition, as a result of its marketing, advertising and promotion of its goods and services Jeddy a/k/a SERIALCOMM and Sima have realized a combined total of gross revenue sales of more than half a million dollars, for the last two years that they have been in business.

26. Still further, as a result of Jeddy's use and promotion of its SERIALCOMM trademarks, the trademarks have acquired considerable value.

27. In other words, Jeddy's use and promotion of its trademarks in connection with its goods and services, have rendered the trademarks well-known to the consuming public and trade.

28. Finally, as a result of Jeddy's use and promotion of its trademarks, the trademarks have begun to identify and distinguish Jeddy as a source for the high quality goods with which the trademarks are being used.

29. Jeddy is also the owner by assignment of all rights, title and interest to United States Copyright Registration No. TXu 1-710-401 for the website entitled www.serialcomm.com. A copy of the certificate for Copyright Registration No. TXu 1-710-401 is annexed hereto as **Exhibit 5.**

30. Copyright Registration No. TXu 1-710-401 was registered on or about December 1, 2010.

31. Jeddy's website is marked with a copyright notice, *i.e.*, "2009-2010 Copyright Protected-Jeddy Ventures LLC."

32. Jeddy is also the owner of all rights, title and interest to the United States Copyright Registration No. TXu 1-642-827 for a collection of Serialcomm data sheets entitled "Collection of Serialcomm Datasheets." A copy of Copyright Registration No. TXu 1-642-827 is annexed hereto as **Exhibit 6.**

33. Copyright Registration No. TXu 1-642-827 was registered on July 14, 2009.

II. SIMA S. ENTERPRISES LLC.

34. Plaintiff Sima S. Enterprises LLC (hereinafter "Sima") was established in 2004.

35. Similar to Jeddy herein above, Sima is a wholesaler and retailer of commercial and industrial data communication equipment such as converters, isolators, suppressors, serial repeaters, USB adapters and various other electronic accessories.

36. Sima's products are fully certified and come with a 30-day unconditional return guarantee as well as a 5-year manufacturer's warranty.

37. Sima's products are of the utmost high quality, something that is particularly important in view of the fact that such products are used to interface expensive equipment.

38. Sima's products are industry proven and widely used by thousands of companies world wide.

39. Sima has a license from Jeddy, by which it has been granted to right to use the mark SERIAL COMM DATA CONVERSION EXPERTS AND DESIGN, in connection with

the marketing, offering to sell, selling and distributing goods, namely electronic and optical communications instruments and components, namely serial data converters and repeaters, optical transmitters, optical receivers, optical data links, optical transceivers, digital transmitters, Ethernet and fiber-optic conversion products, namely, Serial Data Converters, Serial Data Repeaters, Ethernet Switches, Ethernet Data Converters, Fiber Optic Media Converters.

40. Sima also has a license from Jeddy, by which it has been granted the right to use the mark SERIALCOMM in connection with its marketing, offering to sell, selling and distributing goods, namely data communications equipment, namely, serial data converters, Ethernet and fiber-optic repeaters, namely, RS-232C, RS-485 and RS-422; ethernet and fiber-optic software and equipment, namely, serial data converters and repeaters and computer software for network communication.

41. Sima is the owner of all rights title and interest to the domain name www.rs232-converters.com.

42. Sima uses its domain name www.rs232-converters.com to operate a website through which it offers its internet retail and wholesale sales services to the public at large, including but not limited to residents within the state of New York, in connection with SERIALCOMM data communications equipment, namely, serial data converters, Ethernet and fiber-optic repeaters, namely, RS-232C, RS-485 and RS-422; Ethernet and fiber-optic equipment, namely, serial data converters and repeaters and computer software for network communication. A copy of a computer screen shot showing at least one page of Sima's website www.rs232-converters.com is annexed hereto as **Exhibit 7**.

43. All benefits that accrue as a result of Sima's use of the SERIALCOMM marks inure to the benefit of Jeddy.

III. BACKGROUND OF THE DEFENDANT .

44. Upon information and belief, Defendant is a manufacturer of serial converter and software products.

45. Upon information and belief Defendant has a presence in both the United States and Singapore.

46. Upon information and belief, Defendant is the owner of all rights, title and interest to the U.S. Trademark Registration No. 3,416,200 for the word mark COMMFRONT for use in connection with " Computer software for serial and TCP/IP communications, namely, computer software for monitoring, logging, testing, analyzing, and trouble shooting RS-232, RS-485, RS-422, TTL, COMS and TCP/IP Network communications." A copy of the certificate of Defendant's U.S. Registration No. 3,416,200 is annexed hereto as **Exhibit 8.**

47. Upon information and belief, Defendant is currently using the mark COMMFRONT on a green/blue background underscored by horizontal red lines and the words "Communications made easy" written in blue, in connection with computer software for serial and TCP/IP communications, namely, computer software for monitoring, logging, testing, analyzing, and trouble shooting RS-232, RS-485, RS-422, TTL, COMS and TCP/IP Network communications.

48. Defendant owns all rights title and interest to the domain name www.commfront.com .

49. Defendant uses its domain name www.commfront.com to operate a website through which Defendant offers its internet retail and wholesale sales services to the public at large, including but not limited to residents within the state of New York, in connection with computer software for serial and TCP/IP communications, namely, computer software for monitoring, logging, testing, analyzing, and trouble shooting RS-232, RS-485, RS-422, TTL, COMS and TCP/IP Network communications.

50. Upon information and belief, Defendant is the owner of copyrights in certain 2007 and

2008 CommFront Data Sheets, which copyrights are registered with the United States Copyright Office under Registration Numbers VA0001792214 and VA0001792212 respectively. Copies of Defendant's Copyright Registrations together with their respective file histories are annexed hereto as **Exhibits 9-12** inclusive.

IV. EVENTS LEADING UP TO THE PRESENT DISPUTE

51. On or about July of 2006 Sima contacted Defendant for the purpose of exploring the possibility of becoming a reseller of certain of Defendant's products, i.e. certain software and cables associated therewith.

52. Thereafter, Sima and Defendant engaged in negotiations for the purpose of further exploring whether Sima could be a reseller of Defendant's software and cables.

53. The negotiations between Sima and Defendant ended with an informal understanding between the parties that Sima would provide inventory keeping and shipping services for Defendant's products to Defendant's customers in the United States and Canada.

54. To this end, Defendant would have software disks and cables shipped in bulk directly to Sima from either China or Singapore.

55. As soon as Sima would receive notification that a customer had placed an order with the Defendant (not with Sima), Sima would ship the cables and software CDs that the customer had asked for, in exchange for a fee.

56. By the Fall of 2006, the relationship between Sima and the Defendant had morphed such that not only was Sima shipping goods to customers in accordance with the foregoing, but it was also reselling in the United States two of Defendant's data converter products, i.e. the RS232 to RS485 converter and the RS232 to RS485/RS422 converter.

57. Sima and Defendant continued to do business through the beginning of 2009 without incident, and more importantly, without any formal written agreement.

58. In 2009, however, the parties had a serious misunderstanding in connection with certain

activities that the managing member of Sima, Mr. Mordy Naftaly was engaging in, for the purpose of further expanding business, including the formation of Jeddy.

59. As a result of that misunderstanding, on or about April 1, 2009 Defendant terminated its relationship with Sima, by adamantly refusing to deliver any more product for Sima to ship, thereby severely affecting Sima's right and ability to earn a living.

60. Consequently, Sima was left with no other choice, but to start selling SERIALCOMM products, including SERIALCOMM converters through each of their websites www.serialcomm.com and www.rs232-converters.com *see* **Exhibits 3-4** inclusive and **Exhibit 7**.

61. The date of first sale of a SERIALCOMM product by and through Sima's website www.rs232-converters.com was June 30, 2009; long after Defendant terminated its relationship with Sima.

62. The date of first sale of a SERIALCOMM product by and through Jeddy's website www.serialcomm.com was August 20, 2009; once again long after Defendant terminated its relationship with Sima.

63. In the meanwhile, in an effort to totally undermine both Sima's and Jeddy's business, Defendant engaged in a systematic plan to have Sima's website blacklisted by the search engines.

64. Such plan included the unauthorized framing and publishing of Sima's website www.rs232-converters.com, together with the data sheets contained therein, within websites identified by domain names which belonged to the Defendant. Such domain names included but were not limited to www.serial-converters.com/RS232/fiber_optic_converter.httm ;www.232analyzer.com; www.ascii-chart.com; www.commfront.com/rs232; www.fiber-optic-converters.com; www.fiber-optic-media-converter.com; and www.rs232.ws.

65. All in all, Defendant used at least 23 of its own domain names to improperly frame and

publish Sima's website, and the data sheets contained therein, in such a manner as to mislead both internet search engines and consumers about the origins or affiliation of said website. A copy of a computer screen shot showing at least one of such unauthorized framing of Sima's website within Defendant' website identified by its domain name www.serial-converters.com is annexed hereto as **Exhibit 13**.

66. In addition, Defendant changed the background look of its trademark COMMFRONT from a predominantly purple/blue background to a green/blue background similar to Jeddy's SERIALCOMM marks. A copy of a computer screen shot annexed hereto as **Exhibit 14** frames the home page of Defendant's website as of April 20, 2011 and clearly shows the background of the COMMFRONT mark as blue/purple. A copy of a computer screen shot annexed hereto as **Exhibit 15** frames the home page of Defendant's website as of July 5, 2011 and clearly shows the background of the COMMFRONT mark as green/blue.

67. As can be seen from the foregoing, Defendant adopted its green/blue background long after Jeddy adopted its mark SERIALCOMM DATA CONVERSION EXPERTS AND DESIGN , i.e., May 15, 2009, and secured its registration for same on March 1, 2011.

68. Defendant did so for the purpose of trading on the goodwill associated with Jeddy's SERIALCOMM marks.

69. Or, alternatively, Defendant did so to intentionally and willfully dilute the goodwill and recognition associated with Jeddy's SERIALCOMM marks.

70. Neither Jeddy, nor Sima ever approved of Defendant's adoption of its green/blue background. Nor did they authorize or grant permission to Defendant to trade on the goodwill associated with the SERIALCOMM marks.

71. Further, Defendant engaged in a systematic campaign to defame and discredit both Jeddy and Sima in this matter, and interfere in both of their future business relationships.

72. For example, since June 1, 2009 Defendant has been posting material on its websites that

it knows to be false. Specifically on or about June 10, 2009 the following text appeared on Defendant's website: "Dear valued customers, recently, we have discovered that our former distributor Sima Enterprises have been making fake products by using "Commfront" logo illegally, we have terminated their distributorship on June 1, 2009. For customers that have purchased CommFront products from them from April 1, 2009 onwards, please send us a copy of the receipt for record purpose and return the products to them for full refund."

73. Sima has repeatedly explained to Defendant and shown Defendant proof that Defendant is mistaken and that no fake CommFront products were ever sold or offered for sale, at any time.

74. Yet, Defendant refused and continues to refuse Sima's explanations.

75. As a result of Defendant's defamatory statements, Sima experienced a sharp decrease in product sales, which was especially damaging since at that time it had more than $60,000 in CommFront inventory that it needed to sell.

76. Defendant's defamatory statements continue to this day. Copies of computer screen shots showing Defendant's continued defamation of Plaintiff Sima are annexed hereto as **Exhibit 16-17** inclusive .

77. Other examples of how Defendant has interfered in both of Jeddy's future business relationships include but are not limited to, Defendant's refusing to honor its manufacturer's warranty in connection with CommFront products, following the termination of its relationship with Sima; and contacting Sima's suppliers and manufacturers, badmouthing Sima to them and demanding that they immediately cease and desist from doing busines with either Sima or Jeddy.

78. Finally, Defendant to this day, refuses to remit to Sima the $6,810.94 that Defendant still owes to Sima, for previously returned products.

V. EVENTS GIVE RISE TO PLAINTIFFS' COMPLAINT FOR DECLARATORY JUDGEMENT.

79. On or about November 15, 2011, Jeddy received a copy of Defendant's Petition of Cancellation, In Re U.S. Trademark Registration No. 3,924,759 for the mark SERIALCOMM DATA CONVERSION EXPERTS AND DESIGN, as filed with the Trademark Office.

80. Defendant's Petition of Cancellation is seeking to cancel Jeddy's U.S. Trademark Registration No. 3,924,759 for the mark SERIALCOMM DATA CONVERSION EXPERTS AND DESIGN on the basis that Jeddy's SERIALCOMM mark is confusingly similar to Defendant's mark COMMFRONT.

81. However, Jeddy's mark SERIALCOMM DATA CONVERSION EXPERTS AND DESIGN does not look the same, does not sound the same and does not convey the same commercial impression as Defendant's mark COMMFRONT.

82. Defendant's Petition of Cancellation is further seeking to cancel Jeddy's U.S. Trademark Registration No. 3,924,759 for the mark SERIALCOMM DATA CONVERSION EXPERTS AND DESIGN on the basis that Jeddy Venture's SERIALCOMM design color mark is confusingly similar to Defendant's common law mark COMMFRONT in blue and currently green/blue background bordered below by horizontal red lines with the words "Communication made easy" underneath in blue.

83. However, upon information and belief, Jeddy's use and registration of its mark SERIALCOMM DATA CONVERSION EXPERTS significantly antecedes Defendant's adoption and use of its common law mark COMMFRONT in blue and currently green/blue background bordered below by horizontal red lines with the words "Communication made easy" underneath in blue.

84. Accordingly, by its Petition for Cancellation Defendant fails to state a claim upon which relief can be granted.

85. Further Defendant's Petition for Cancellation is barred by the Doctrine of Laches.

86. Finally, Defendant's Petition for Cancellation is barred by the Doctrine of Unclean Hands.

87. On or about November 22,, 2011, Jeddy received a copy of Defendant's Petition for Opposition, In Re Application Serial No. 85/145,383 for the mark SERIALCOMM as filed with the Trademark Office.

88. Defendant's Petition of Opposition is opposing In Re Application Serial No. 85/145,383 for the mark SERIALCOMM on the basis that Jeddy's SERIALCOMM mark is confusingly similar to Defendant's wordmark COMMFRONT.

89. However a comparison of Defendant's and Jeddy's marks clearly show that they do not sound the same, do not look the same and do not convey the same commercial impression.

90. Accordingly, by its Petition for Opposition Defendant fails to state a claim upon which relief can be granted.

91. Further, Defendant's Petition for Opposition is barred by the Doctrine of Laches.

92. Finally, Defendant's Petition for Opposition is barred by the Doctrine of Unclean Hands.

93. On or about November 16, 2011, Jeddy received Defendants' NOTIFICATION OF INFRINGEMENT PURSUANT TO THE DIGITAL MILLENNIUM COPYRIGHT ACT, i.e., 17 U.S.C. § 512, in which Defendant averred that Jeddy uses its websites www.serialcomm.com and www.rs232-converters.com to infringe Defendant's Copyrights as embodied in Defendant's Copyright Registrations VA0001792214 and VA0001792212, respectively.

94. Upon information and belief, Sima and Jeddy have committed no infringement of Copyrights.

95. Upon information and belief, Defendant's copyright registrations are invalid and therefore unenforceable.

96. Upon information and belief Defendant is not the owner of the Copyrights alleged.

97. Upon information and belief, Defendant's allegations of Copyright Infringement are barred by the Doctrine of Fair Use.

98. Upon information and belief, Defendant's allegations of Copyright infringement are barred by Laches.

99. Upon information and belief, Defendant's allegations of Copyright infringement are barred by Unclean Hands.

First Claim for Relief
Claim for Declaratory Judgement of Non-Infringement of the mark COMMFRONT

100. Jeddy and Sima incorporate by reference all of their allegations contained in Paragraphs 1-99 of the present Amended Complaint, as though more fully set forth herein.

101. Defendant's November 2011 Petitions of Cancellation and for Opposition, and Defendant's November 2011 Notification of Infringement Pursuant to the Digital Millennium Copyright Act create a case of actual controversy within the meaning of 28 U.S.C. § 2201 *et. seq.,* thus warranting the declaratory relief sought by Plaintiffs Jeddy and Sima, in the present claim.

102. Jeddy seeks a declaratory judgement and a determination that its and Sima's use of the mark SERIALCOMM DATA CONVERSION EXPERTS AND DESIGN is not unlawful and does not constitute trademark infringement of Defendant's mark COMMFRONT.

103. Further, Jeddy seeks a declaratory judgement that its trademark registration, *i.e,*, U.S. Trademark Registration No. 3,924,759 shall not be cancelled, and that it is entitled to continue to use its mark SERIALCOMM in connection with its goods.

104. Jeddy has not acted in bad faith or with any intent to profit from the goodwill, if any, associated with Defendant's purported mark COMMFRONT.

105. Jeddy believed and had reasonable grounds to believe that its use of the term "SERIALCOMM" in its advertising, marketing and sales materials, and website and search engine optimization was lawful given the fact that SERIALCOMM does not sound the same, does not look the same and does not convey the same commercial impression as COMMFRONT.

106. In view of the fact that SERIALCOMM does not sound the same, does not look the same and does not convey the same commercial impression as COMMFRONT, Jeddy's and Sima's use of the mark SERIALCOMM in its advertising, marketing and sales materials, and website and search engine optimization would not be understood by Internet users or other members of the public as identifying Defendant.

Second Claim for Relief
Claim for Declaratory Judgement of Invalidity and Non-Infringement of Defendant's Copyright Registration VA0001792214

107. Jeddy and Sima incorporate by reference all of their allegations contained in Paragraphs 1-106 of the present Amended Complaint, as though more fully set forth herein.

108. Defendant's November 2011 Petitions of Cancellation and Opposition, and Defendant's Notification of Infringement Pursuant to the Digital Millennium Copyright Act create a case of actual controversy within the meaning of 28 U.S.C. § 2201 *et. seq.,* thus warranting the declaratory relief sought by Jeddy and Sima in the present claim.

109. Jeddy and Sima seek a declaratory judgement and a determination that Copyright Registration VA0001792214 is invalid, and/or unenforceable or not infringed. Further, Jeddy and Sima seek a declaratory judgement that they are entitled to continue to use and reactivate and make live all of the links set forth in Defendant's November 16, 2011, Notice of Infringement Pursuant to the Digital Millennium Copyright Act.

110. Upon information and belief the copyrights to Defendant's 2007 and 2008 Data Sheets,

which copyrights are registered with the United States Copyright Office under Registration Numbers VA0001792214 and VA0001792212 (*see* **Exhibits 9-12**)are invalid and unenforceable because they contain numerous things that are not original to the Defendant.

111. Upon information and belief Defendant's failure to identify which sections in Defendant's 2007 and 2008 Data Sheets, protected under United States Copyright Office Registration Numbers VA0001792214 and VA0001792212, are in fact original to Defendant and which are not, is misuse of copyrights.

112. Jeddy's and Sima's use of any material that is similar to material in Defendant's 2007 and 2008 Data Sheets is legally protected because it falls within the "fair use" provision of the copyright regulations as defined in 17 U.S.C. § 107.

113. Defendant's claims are barred by the doctrine of Laches. Jeddy relied on the fact that Defendant never brought suit against it, notwithstanding the fact that in 2009 Defendant threatened to do so.

114. Defendant's unfair competition acts in an effort to drive Jeddy and Sima out of business, including Defendant's unauthorized copying, framing within Defendant's own websites and publishing of Sima's website over multiple of Defendant's domains and intentional interference with future business relationships, prevent Defendant from seeking any relief under the doctrine of Unclean Hands.

Third Claim for Relief
Claim for Declaratory Judgement of Invalidity and Non-Infringement of Defendant's Copyright Registration VA0001792212

115. Jeddy and Sima incorporate by reference all of their allegations contained in Paragraphs 1-114 of the present Complaint, as though more fully set forth herein.

116. Defendant's November 2011 Petitions of Cancellation and Opposition, and Defendant's

Notification of Infringement Pursuant to the Digital Millennium Copyright Act create a case of actual controversy within the meaning of 28 U.S.C. § 2201 *et. seq.,* thus warranting the declaratory relief sought by Jeddy and Sima in the present claim.

117. Jeddy and Sima seek a declaratory judgement and a determination that Copyright Registration VA0001792212 is invalid, and/or unenforceable or not infringed. Further, Jeddy and Sima seek a declaratory judgement that they are entitled to continue to use and reactivate and make live all of the links set forth in Defendant's November 16, 2011, Notice of Infringement Pursuant to the Digital Millennium Copyright Act.

118. Upon information and belief the copyrights to Defendant's 2007 and 2008 Data Sheets, which copyrights are registered with the United States Copyright Office under Registration Numbers VA0001792214 and VA0001792212 (*see* **Exhibits 9-12**) are invalid and unenforceable because they contain numerous things that are not original to the Defendant.

119. Upon information and belief Defendant's failure to identify which sections in Defendant's 2007 and 2008 Data Sheets, protected under United States Copyright Office Registration Numbers VA0001792214 and VA0001792212, are in fact original to Defendant and which are not, is misuse of copyrights.

120. Jeddy's and Sima's use of any material that is similar to material in Defendant's 2007 and 2008 Data Sheets is legally protected because it falls within the "fair use" provision of the copyright regulations as defined in 17 U.S.C. § 107.

121. Defendant's claims are barred by the doctrine of Laches. Jeddy and Sima relied on the fact that Defendant never brought suit against it, notwithstanding the fact that Defendant threatened to do so, in as early as 2009.

122. Defendant's unfair competition acts in an effort to drive Jeddy and Sima out of business, including Defendant's copying of Sima's website in its totality, framing it within Defendants own websites and posting it over multiple of Defendant's domains, and

intentional interference with future business relationships, prevent Defendant from seeking any relief under the doctrine of Unclean Hands.

Fourth Claim for Relief
Trademark InfringementUnder The Lanham Act
Pursuant to 15 U.S.C. § 1114

123. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-122 of this Amended Complaint as though more fully set forth herein.

124. Defendant's conduct, as described herein, including a) its use of Jeddy's mark SERIALCOMM during the downloading, copying, framing, posting and publishing of Sima's website www.rs232-converters.com within Defendant's websites, as identified by Defendant's domain names set forth herein above; and b) its use of its common law mark COMMFRONT in blue and currently green/blue background bordered below by horizontal red lines with the words "Communication made easy" underneath in blue, after Jeddy adopted its mark SERIALCOMM DATA CONVERSION EXPERTS for which it has received its U.S. Trademark Registration No. 3,924,759, constitute trademark infringement and unfair competition because such uses are likely to cause and have caused confusion, mistake and deception as to the affiliation, connection and association between Defendant's products and Plaintiffs' products, in violation of Section 32 of the Lanham Act, 15 U.S.C. § 1114(1).

125. As a direct and proximate result of Defendant's wrongful conduct, Defendant has caused Jeddy and Sima irreparable harm and injury.

126. Defendant's acts of infringement and unfair competition are knowing and willful.

127. Unless Defendant is enjoined from its wrongful conduct, Jeddy and Sima will suffer further irreparable injury and harm, for which they have no adequate remedy at law.

Fifth Claim for Relief
Federal Unfair Competition Pursuant to 15 U.S.C. § 1125(a)
(False Designation of Origin)

128. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-127 of this Amended Complaint as though more fully set forth herein.

129. Defendant's conduct, as described herein, including a) its use of Jeddy's mark SERIALCOMM during the downloading, copying, framing, posting and publishing of Sima's website www.rs232-converters.com within Defendant's websites, as identified by Defendant's domain names set forth herein above; and b) its use of its common law mark COMMFRONT in blue and currently green/blue background bordered below by horizontal red lines with the words "Communication made easy" underneath in blue, after Jeddy adopted its mark SERIALCOMM DATA CONVERSION EXPERTS for which it has received its U.S. Trademark Registration No. 3,924,759, constitute federal unfair competition because such uses falsely designate the origin as to the affiliation, connection and association between Defendant's products and Plaintiffs' products, in violation of Section 43(a) of the Lanham Act, 15 U.S.C. § 1125(a).

130. As a direct and proximate result of Defendant's wrongful conduct, Defendant has caused Plaintiff s irreparable harm and injury.

131. Defendant's acts of infringement and unfair competition are knowing and willful.

132. Unless Defendant is enjoined from its wrongful conduct, Plaintiffs Jeddy and Sima will suffer further irreparable injury and harm, for which they have no adequate remedy at law.

Sixth Counterclaim for Relief
Federal Unfair Competition Pursuant to 15 U.S.C. § 1125(a)
(Confusion, Mistake and/or Deception)

133. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-132 of

the Amended Complaint as though more fully set forth herein.

134. Defendant's conduct, as described herein, including a) its use of Jeddy's mark SERIALCOMM during the downloading, copying, framing, posting and publishing of Sima's website www.rs232-converters.com within Defendant's websites, as identified by Defendant's domain names set forth herein above; and b) its use of its common law mark COMMFRONT in blue and currently green/blue background bordered below by horizontal red lines with the words "Communication made easy" underneath in blue, after Jeddy adopted its mark SERIALCOMM DATA CONVERSION EXPERTS for which it has received its U.S. Trademark Registration No. 3,924,759, constitute federal unfair competition because such uses cause the likelihood of confusion, mistake and/or deception as to the affiliation, connection and association between Counterclaim Defendant's products and Counterclaim Plaintiff's products, in violation of Section 43(a) of the Lanham Act, 15 U.S.C. § 1125(a).

135. As a direct and proximate result of Defendant's wrongful conduct, Counterclaim Defendant has caused Plaintiffs irreparable harm and injury.

136. Defendant's acts of infringement and unfair competition are knowing and willful.

137. Unless Defendant is enjoined from its wrongful conduct, Plaintiffs will suffer further irreparable injury and harm, for which they have no adequate remedy at law.

Seventh Claim for Relief
Federal Trademark Dilution Pursuant to 15 U.S.C. § 1125(c)

138. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-137 of this Amended Complaint as though more fully set forth herein.

139. Defendant's use of Jeddy's mark SERIALCOMM during the downloading, copying, framing, posting and publishing of Sima's website www.rs232-converters.com within Defendant's websites, as identified by Defendant's domain names set forth herein above;

and b) its use of its common law mark COMMFRONT in blue and currently green/blue background bordered below by horizontal red lines with the words "Communication made easy" underneath in blue, after Jeddy adopted its mark SERIALCOMM DATA CONVERSION EXPERTS for which it has received its U.S. Trademark Registration No. 3,924,759, was and is with full knowledge of Plaintiffs' rights.

140. Such use will dilute and tarnish the distinctive quality of Plaintiffs' SERIALCOM marks, thereby causing substantial and irreparable injury to Plaintiffs, and have damaged and are likely to continue to damage Plaintiffs' goodwill, and reputation unless restrained by this Court.

141. Defendant's foregoing unlawful actions were intended to willfully trade on Plaintiffs' reputation or to cause dilution of the SERIALCOMM marks so as to justify the assessment of treble damages and attorneys' fees under 15 U.S.C. §1117.

142. As a direct and proximate result of the foregoing, Plaintiffs have suffered monetary damages in an amount to be determined at trial.

Eighth Claim for Relief
Infringement of Jeddy Ventures LLC's Copyright Registration No. TXu 1-710-401

143. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-142 of this Amended Complaint as though more fully set forth herein.

144. Defendant, by its acts set forth herein above, infringed Jeddy Ventures LLC Copyright Registration No. TXu 1-710-401 (**Exhibit 5**).

145. Jeddy and Sima further assert that such acts by Defendant were intentional and willful.

146. Upon information and belief, Defendant intends to continue to infringe Jeddy's copyright, unless enjoined by this Court.

147. Such misconduct has caused and will continue to cause Jeddy and Sima great and irreparable harm.

148. Jeddy and Sima have no adequate remedy at law and are, therefore, entitled to and hereby request the issuance of a permanent and final injunction against Defendant's further duplication of Jeddy's copyrighted website, pursuant to 17 U.S.C. § 501 and § 502.

149. Jeddy and Sima are entitled to reasonable attorney's fees pursuant to 17 U.S.C. § 505.

Ninth Claim for Relief
Infringement of Jeddy Ventures LLC's Copyright Registration No. TXu 1-642-827

150. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-149 of this Amended Complaint as though more fully set forth herein.

151. Defendant, by its acts set forth herein above, infringed Jeddy Ventures LLC Copyright Registration No. TXu 1-642-827 (**Exhibit 6**).

152. Jeddy and Sima further assert that such acts by Defendant were intentional and willful.

153. Upon information and belief, Defendant intends to continue to infringe Jeddy's copyright, unless enjoined by this Court.

154. Such misconduct has caused and will continue to cause Jeddy and Sima great and irreparable harm.

155. Jeddy and Sima have no adequate remedy at law and are, therefore, entitled to and hereby request the issuance of a permanent and final injunction against Defendant's further duplication of Jeddy's copyrighted website, pursuant to 17 U.S.C. § 501 and § 502.

156. Jeddy and Sima are entitled to reasonable attorney's fees pursuant to 17 U.S.C. § 505.

Tenth Claim for Relief
Violation of New York General Business Law § 133

157. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-156 of this Amended Complaint as though more fully set forth herein.

158. Counterclaim Defendant's foregoing unlawful actions constitute the assumption, adoption

or use, with the intent to deceive members of the public and media, for advertising and other purposes, of the SERIALCOMM marks and colorable imitations thereof, which may deceive or mislead the aforementioned as to the identity of Defendant or its goods and services or as to an unfounded connection of Defendant with Plaintiffs, in violation of New York Gen. Bus. Law §133, and similar statutory or common laws of other states, in that it is likely to cause injury to Plaintiffs.

159. Defendant's continuing unlawful acts are likely to cause substantial and irreparable injury to Plaintiffs, and are likely to continue to damage Plaintiffs' goodwill, and reputation unless restrained by this Court.

Eleventh Claim for Relief
Deceptive Business Practice in contravention of
New York General Business Law § 349

160. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-159 of this Amended Complaint as though more fully set forth herein.

161. Defendant's conduct, as described herein, including their use of the SERIALCOMM marks , constitutes state unfair competition because it comprises or constitutes at least one deceptive business practice, as defined by and in contravention of New York General Business Law § 349 as to the affiliation, connection and association between Defendant's products and Plaintiff's products, in violation of New York General Business Law § 349.

162. As a direct and proximate result of Defendant's wrongful conduct, Defendant has caused Plaintiffs irreparable harm and injury.

163. Defendant's acts of infringement and unfair competition are knowing and willful.

164. Unless Defendant is enjoined from its wrongful conduct, Plaintiffs will suffer further irreparable injury and harm, for which they have no adequate remedy at law.

Twelfth Claim for Relief
Dilution and Injury to Business Reputation Pursuant to
New York General Business Law § 360-l

165. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-164 of this Amended Complaint as though more fully set forth herein.

166. Defendant's activities as set forth herein above are in violation of New York Gen. Bus. Law §360-l, and similar statutory or common laws of other states in that they are likely to cause injury to Plaintiffs' business reputation or dilute the distinctive quality of the SERIALCOMM trademarks.

167. Defendant's continuing violations of New York Gen. Bus. Law §360-l are causing and are likely to cause substantial and irreparable injury to Plaintiffs, and have damaged and are likely to continue to damage Plaintiffs' business activities, goodwill, and reputation unless restrained by this Court.

Thirteenth Claim for Relief
Infringement Pursuant to New York State Common Law,
New York State Trademark Law and New York State Unfair Competition Laws

168. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-167 of this Amended Complaint as though more fully set forth herein.

169. Defendant's conduct, as described herein, including its use of the SERIALCOMM marks constitutes infringement pursuant to New York State Common Law, New York State Trademark Law, and/or New York State Law of Unfair Competition as defined by and in contravention of New York Statutes and Case Law as to the affiliation, connection and association between Defendant's products/business and Plaintiffs' products/business, in violation of New York State Common Law, New York State Trademark Law, and/or New York State Law of Unfair Competition.

170. As a direct and proximate result of Defendant's wrongful conduct, Defendant has caused

Plaintiffs irreparable harm and injury.

171. Defendant's acts of infringement and unfair competition are knowing and willful.

172. Unless Defendant is enjoined from its wrongful conduct, Plaintiffs will suffer further irreparable injury and harm, for which they have no adequate remedy at law.

Fourteenth Claim for Relief
Breach of Contract

173. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1- 172 of the First Amended Complaint as though more fully set forth herein.

174. Defendant breached its agreement with Sima when it refused to remit to Sima the $6,810.94 that Defendant still owes to Sima, for previously returned converters.

175. Defendant also breached its agreement with Sima when, following the termination of its relationship with Sima and Jeddy, it refused to honor its manufacturer's warranty to customers who had purchased Defendant's converters through Sima.

176. As an actual and proximate result of Defendant's willful and intentional actions Sima has suffered damages of no less that $6,810.94 plus interest. Sima has also suffered (i) loss of customers disenfranchised by Defendant's failure to honor its manufacturer's warranty; (ii) harm to its reputation; and (iii) loss of its goodwill.

177. As a result of the foregoing, Jeddy and Sima are entitled to an award of compensatory, consequential, and punitive damages for malicious and wanton conduct based upon the past and continuing breach of contract.

178. As a direct and proximate result of Defendant's wrongful conduct, Defendant has caused Jeddy and Sima irreparable harm and injury.

179. Defendant's acts are knowing and willful.

180. Unless Defendant is enjoined from its wrongful conduct, Plaintiffs will suffer further irreparable injury and harm, for which they have no adequate remedy at law.

Fifteenth Claim for Relief
Conversion

181. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1- 180 of the First Amended Complaint as though more fully set forth herein.

182. The converters that Sima and Jeddy returned and entrusted to Defendant, rightfully belonged to Sima and Jeddy.

183. Sima and Jeddy were entitled to receive a refund from Defendant, upon receipt of the converters by Defendant.

184. Defendant retained the converters, or alternatively resold the retained converters and deposited the proceeds of such sales into Defendant's bank account, or otherwise kept such proceeds for its own use and benefit, thereby converting them for Defendant's own use.

185. Jeddy and Sima did not authorize Defendant to retain the converters without refunding Sima the money it had paid to Defendant for such converters, or to retain the proceeds from the re-sale of such converters for its own use and benefit.

186. As a result of the wrongful and unlawful conversion by Defendant of property belonging to Plaintiffs, Plaintiffs have been damaged in an amount to be determined at trial, but in no event less than $6,810.94.

Sixteenth Claim for Relief
Money had and received

187. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1- 186 of the First Amended Complaint as though more fully set forth herein.

188. By failing to remit to Plaintiffs a refund for the converters returned to it, Defendant took and retained for its own use, monies rightfully belonging to Plaintiffs.

189. Defendant benefitted from the monies that did not belong to it, which it wrongfully retained for its own use.

190. As a result, Defendant is liable to Plaintiff Sima, who has been damaged in an amount to be determined at trial, but in no event less than $6,810.94.

Seventeenth Claim for Relief
Unjust Enrichment

191. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1- 190 of the First Amended Complaint as though more fully set forth herein.

192. Defendant has been unjustly enriched by its improper and unauthorized retention of the refund that Defendant was supposed to return to Plaintiff Sima for returned converters.

193. As a result, Defendant is liable to Plaintiff Sima in an amount to be determined at trial, but in no event less than $6,810.94.

Eighteenth Claim for Relief
Tortious Interference with Contract

194. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1- 193 of the First Amended Complaint as though more fully set forth herein.

195. Defendant has interfered with Jeddy's and Sima's agreements with their manufacturers, suppliers, and all of their internet access and service providers for the purpose of inflicting intentional harm on Jeddy and Sima.

196. As a direct result of Defendant's actions, Jeddy and Sima have suffered harm to their business and their business prospects.

197. As a result of the foregoing, Jeddy and Sima are entitled to an award of compensatory, consequential, and punitive damages for malicious and wanton conduct based upon the

Defendant's past and continuing tortious interference. Further, Defendant should be directed to immediately account for all monies earned as a result of its tortious interference and to disgorge same.

198. Defendant's acts are knowing and willful.

199. Unless Defendant is enjoined from its wrongful conduct, Jeddy and Sima will suffer further irreparable injury and harm, for which they have no adequate remedy at law.

Nineteenth Claim for Relief
Tortious Interference with Advantageous Business Relations

200. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-199 of this First Amended Complaint as though more fully set forth herein.

201. Defendant interfered with and caused Plaintiffs' business relations, *i.e.*, internet service providers and hosting company, to dilute and partially cease their relationship with Plaintiffs by improperly causing the removal of at least 111 web pages and disabling access to Plaintiffs' websites.

202. Defendant has interfered with Plantiffs' business relations for the purpose of inflicting intentional harm on Plaintiffs while simultaneously enriching itself.

203. As a direct result of Defendant's actions, Plaintiffs have suffered harm to their business and their business prospects.

204. As a result of the foregoing, Plaintiffs are entitled to an award of compensatory, consequential, and punitive damages for malicious and wanton conduct based upon the Defendant's past and continuing tortious interference. Further, Defendant should be directed to immediately account for all monies earned as a result of its tortious interference and to disgorge same.

205. Defendant's acts are knowing and willful.

206. Unless Defendant is enjoined from its wrongful conduct, Plaintiffs will suffer further

irreparable injury and harm, for which they have no adequate remedy at law.

Twentieth Claim for Relief
Prima Facie Tort

207. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-206 of this First Amended Complaint as though more fully set forth herein.

208. Defendant engaged in all of the acts set forth herein above to purposefully, intentionally and/or negligently cause harm to Jeddy and Sima through its wrongful actions.

209. Defendant's conduct was related to its desire to maliciously undercut Jeddy and Sima to the financial benefit of Defendant.

210. Defendant's actions were malicious towards Jeddy and Sima. Through all of its actions, Defendant intended and desired to inflict injury upon Jeddy and Sima to its own financial benefit.

211. As a result of Defendant's acts, Jeddy and Sima have suffered special damages, including the loss or diminution in future earnings.

212. As a result of the foregoing, Plaintiffs are entitled to an award of compensatory, consequential, and punitive damages for malicious and wanton conduct based upon Defendant's tortious acts. Further, Defendant should be directed to immediately account for all monies earned as a result of its tortious acts and to disgorge same.

213. As a direct and proximate result of Defendant's wrongful conduct, Defendant has caused Plaintiffs irreparable harm and injury.

214. Defendant's acts are knowing and willful.

215. Unless Defendant is enjoined from its wrongful conduct, Plaintiffs will suffer further irreparable injury and harm, for which they have no adequate remedy at law.

Twenty-first Claim for Relief
Defamation/Libel

216. Jeddy and Sima incorporate by reference the allegations contained in paragraphs 1-215 of this First Amended Complaint as though more fully set forth herein.

217. Defendant was at all times and still is the owner of all rights, title and interest to the website identified by the domain name www.commfront.com

218. Annexed hereto as **Exhibit 16**, is a copy of a computer screen shot setting forth certain of Defendant's November 2011 statements, which the Defendant published on its website www.commfront.com with the intent to injure and defame the Plaintiffs in their reputation and goodwill associated with their business.

219. Annexed hereto as **Exhibit 17**, is another copy of a computer screen shot, setting forth certain of Defendant's December 15, 2011 statement, which the Defendant published on its website www.commfront.com with the intent to injure and defame the Plaintiffs in their reputation and goodwill associated with their business.

220. The foregoing are only a small sampling of similar statements that Defendant has published on its website since 2009, with the intent to injure and defame the Plaintiffs in their reputation and goodwill associated with their business.

221. The matters so published by Defendant are false and defamatory.

222. Defendant knew that these statements were untrue at the time of such publication.

223. As a result of the publication of such defamatory matter, the Plaintiffs have suffered damages in an amount to be determined at trial, but in no event less than $1,000,000.

224. As a direct and proximate result of Defendant's wrongful conduct, Defendant has caused Plaintiffs irreparable harm and injury.

225. Defendant's acts are knowing and willful.

226. Unless Defendant is enjoined from its wrongful conduct, Plaintiffs will suffer further irreparable injury and harm, for which they have no adequate remedy at law.

REQUEST FOR RELIEF

WHEREFORE, Plaintiffs JEDDY VENTURES LLC and SIMA S. ENTERPRISES LLC pray and respectfully request that Judgement be entered Holding that:

I. Plaintiffs' use of their SERIALCOMM marks is not unlawful and does not constitute trademark infringement of Defendant's mark COMMFRONT.

II. Plaintiffs' websites and links do not constitute copyright infringement of any of Defendant's copyrights.

III. Defendant's copyrights, *i.e.*, Registration Numbers VA0001792214 and VA0001792212 are invalid and unenforceable.

IV. Defendant is not the owner of the copyrights Defendant has asserted against Plaintiffs.

V. Defendant, and all persons acting in concert or participating with them be preliminarily and permanently enjoined from:

A. using the SERIALCOMM marks, or any other names, words, designations or symbols consisting of, incorporating in whole or part, or otherwise similar to the SERIALCOMM trademarks;

B. otherwise infringing Plaintiffs' SERIALCOMM marks;

C. engaging in false designations of origin, false description, false advertising or false representations or otherwise engaging in unfair business or deceptive trade practices or competing unfairly with Plaintiffs;

D. engaging in any other conduct that is likely to cause confusion or to cause mistake or to deceive as to the source, affiliation, connection, or association of Defendant's products or services with the Plaintiffs;

E. engaging in any further infringement of Plaintiffs' copyrights;

F. engaging in any further tortious interference with Plaintiffs' business; and

G. publishing defamatory matter.

VI. Defendant be ordered to pay Plaintiffs all damages suffered by reason of Defendant's trademark infringement, trademark dilution, and unfair competition as set forth in these claims (15 U.S.C. §§ 1117(a) and 1125(c)(2)); all damage for copyright infringement pursuant to 17 U.S.C. § 504; and all damages arising for breach of contract, unjust enrichment, tortious interference and common law fraud.

VII. Defendant be ordered to pay Counterclaim Plaintiff punitive or exemplary damages as provided by law, including damages for willful trademark infringement and copyright infringement pursuant to 17 U.S.C. § 504(d).

VIII. Defendant be required to file with this Court and serve on the undersigned counsel for the Plaintiffs within thirty (30) days after the entry of judgment a written report under oath setting forth in detail the manner in which Defendant has complied with the injunction ordered by this Court. (15 U.S.C § 1116).

IX. Defendant be ordered to pay to Plaintiffs the costs of this action and reasonable attorneys' fees pursuant 15 U.S.C. §§ 1117(a) and 1125(c)(2); and 17 U.S.C. § 505.

X. Plaintiffs shall have such other relief as this Court may deem just and proper.

[INTENTIONALLY LEFT BLANK]

JURY DEMAND

Pursuant to Rule 38(d) of the Federal Rules of Civil Procedure, Plaintiffs Jeddy and Sima hereby demand a trial by jury on all issues so triable by right.

Respectfully Submitted,
INTELLECTULAW
THE LAW OFFICES OF P.B. TUFARIELLO, P.C.

Dated: 03/26/2012

Panagiota Betty Tufariello

Panagiota Betty Tufariello (PBT 3429)
25 Little Harbor Road
Mount Sinai, NY 11766
631-476-8734
631-476-8737(FAX)
24yellow@optonline.net
info@intellectulaw.com
betty@intellectulaw.com

Attorneys for Plaintiffs
JEDDY VENTURES, LLC and
SIMA S. ENTERPRISES, LLC

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing **AMENDED COMPLAINT (FIRST) FOR DECLARATORY JUDGMENT AND DEMAND FOR JURY TRIAL together with its exhibits** has been filed via ECF, a notice of which will be sent by operation of the Court's electronic filing system to all parties, including the following attorneys for Defendant Commfront Communication Pte. Ltd.:

Todd A. Higgins, Esq.
Kimberly Savage, Esq.
CROSBY & HIGGINS LLP
350 Broadway, Suite 300
New York, NY 10013
E-mail:thiggins@crosbyhiggins.com

on Monday, March 26, 2012

Panagiota Betty Tufariello

PANAGIOTA BETTY TUFARIELLO, ESQ

EXHIBIT 1

United States of America

United States Patent and Trademark Office

SerialComm

Data Conversion Experts

Reg. No. 3,924,759

Registered Mar. 1, 2011

Int. Cl.: 9

TRADEMARK

PRINCIPAL REGISTER

JEDDY VENTURES LLC (NEW JERSEY LIMITED LIABILITY COMPANY), DBA SERIALCOMM
1298 EVANS ROAD
WALL TOWNSHIP, NJ 07719

FOR: ELECTRONIC AND OPTICAL COMMUNICATIONS INSTRUMENTS AND COMPONENTS, NAMELY SERIAL DATA CONVERTERS AND REPEATERS, OPTICAL TRANSMITTERS, OPTICAL RECEIVERS, OPTICAL DATA LINKS, OPTICAL TRANSCEIVERS, DIGITAL TRANSMITTERS; ETHERNET AND FIBER-OPTIC CONVERSION VERSION PRODUCTS, NAMELY, SERIAL DATA CONVERTERS, SERIAL DATA REPEATERS, ETHERNET SWITCHES, ETHERNET DATA CONVERTERS, FIBER OPTIC MEDIA CONVERTERS, IN CLASS 9 (U.S. CLS. 21, 23, 26, 36 AND 38).

FIRST USE 5-15-2009; IN COMMERCE 5-15-2009.

NO CLAIM IS MADE TO THE EXCLUSIVE RIGHT TO USE "SERIALCOMM" AND "DATA CONVERSION", APART FROM THE MARK AS SHOWN.

THE COLOR(S) BLUE, BLACK AND GREEN IS/ARE CLAIMED AS A FEATURE OF THE MARK.

THE MARK CONSISTS OF THE WORDMARK "SERIALCOMM" IN BLUE BORDERED ABOVE AND BELOW BY HORIZONTAL GREEN LINES WITH THE WORDS "DATA CONVERSION EXPERTS" UNDERNEATH IN BLACK.

SER. NO. 77-947,937, FILED 3-2-2010.

DAVID MILLER, EXAMINING ATTORNEY

UNITED STATES PATENT AND TRADEMARK OFFICE · DEPARTMENT OF COMMERCE

David J. Kappos

Director of the United States Patent and Trademark Office

EXHIBIT 2

Thank you for your request. Here are the latest results from the TARR web server.

This page was generated by the TARR system on 2012-03-23 17:32:18 ET

Serial Number: 85145383 Assignment Information Trademark Document Retrieval

Registration Number: (NOT AVAILABLE)

Mark

SERIALCOMM

(words only): SERIALCOMM

Standard Character claim: Yes

Current Status: An opposition after publication is pending at the Trademark Trial and Appeal Board. For further information, see TTABVUE on the Trademark Trial and Appeal Board web page.

Date of Status: 2011-11-22

Filing Date: 2010-10-05

Transformed into a National Application: No

Registration Date: (DATE NOT AVAILABLE)

Register: Principal

Law Office Assigned: LAW OFFICE 115

Attorney Assigned:
SMITH BRIDGETT G

Current Location: 650 -Publication And Issue Section

Date In Location: 2011-08-25

LAST APPLICANT(S)/OWNER(S) OF RECORD

---

1. Jeddy Ventures LLC

DBA/AKA/TA/Formerly: DBA SerialComm

Address:
Jeddy Ventures LLC
1298 Evans Road
Wall Township, NJ 07719
United States
Legal Entity Type: Limited Liability Company
State or Country Where Organized: New Jersey

GOODS AND/OR SERVICES

International Class: 009
Class Status: Active
Data communications equipment and software, namely, computer software for network communication, serial data converters, Ethernet and fiber-optic repeaters, namely, RS-232C, RS-485 and RS-422; Ethernet and fiber-optic software and equipment, namely, serial data converters and repeaters and computer software for network communication
Basis: 1(a)
First Use Date: 2009-04-01
First Use in Commerce Date: 2009-04-01

ADDITIONAL INFORMATION

Section 2(f)

MADRID PROTOCOL INFORMATION

(NOT AVAILABLE)

PROSECUTION HISTORY

NOTE: To view any document referenced below, click on the link to "Trademark Document Retrieval" shown near the top of this page.

2011-11-22 - Opposition instituted for Proceeding

2011-10-26 - Extension Of Time To Oppose Received

2011-09-27 - Official Gazette Publication Confirmation E-Mailed

2011-09-27 - Published for opposition

2011-08-25 - Law Office Publication Review Completed

2011-08-17 - Approved for Pub - Principal Register (Initial exam)

2011-08-16 - Examiner's Amendment Entered

2011-08-15 - Notification Of Examiners Amendment E-Mailed

2011-08-15 - EXAMINERS AMENDMENT E-MAILED

2011-08-15 - Examiners Amendment -Written

2011-08-15 - Data Modification Completed

2011-08-15 - Assigned To LIE

2011-07-22 - Teas/Email Correspondence Entered

2011-07-21 - Communication received from applicant

2011-07-21 - TEAS Response to Office Action Received

2011-01-21 - Notification Of Non-Final Action E-Mailed

2011-01-21 - Non-final action e-mailed

2011-01-21 - Non-Final Action Written

2011-01-13 - Assigned To Examiner

2010-10-09 - Notice Of Pseudo Mark Mailed

2010-10-08 - New Application Office Supplied Data Entered In Tram

2010-10-08 - New Application Entered In Tram

ATTORNEY/CORRESPONDENT INFORMATION

Attorney of Record
JungJin Lee

Correspondent
PANAGIOTA BETTY TUFARIELLO
INTELLECTULAW THE LAW OFFICES OF PB TUFA
25 LITTLE HARBOR ROAD
MOUNT SINAI, NY 11766
Phone Number: 866-400-2507
Fax Number: 800-689-7978

EXHIBIT 3

SerialComm
Data Conversion Experts

McAfee SECURE TESTED DAILY 23-MAR

BBB

My Cart

by product name, part number... GO

Home | Products | Wholesale | Downloads | Knowledge Base | Distributors | Contact Us

24/7 Tech Support

Call us at: 1-877-218-7964

Click for Live Chat - ONLINE -

Shipping Solutions

FedEx Express, UPS, DHL

Free World-Wide Shipping

Same Day Express Delivery

Safety Assured

RoHS, FC CE, ISO 9001, TÜVRheinland® Precisely Right.

Click for Testing Info

Payment Options

VISA, MasterCard, Discover, American Express, PayPal, Purchase Orders

All Major Payment Forms Accepted!

Satisfaction Guaranteed!

5 Year Warranty

5 Year Warranty

+ 30 Day Money Back Guarantee

Click for Our Quality & Price Guarantee

Free Worldwide Shipping

- Free world-wide shipping is available on all of our Products

Guaranteed Express Delivery

- Optional guaranteed Same-Day Express until 7:00pm EST
- We Guarantee Same-Day Delivery to FedEx
- Your package is FREE if not shipped to FedEx on time
- See Terms & Conditions for Details

1 2 3 4 5

Wholesale Orders

We handle orders of any magnitude - large or small

We offer competitive wholesale pricing and dealer discounts

We can customize your order to meet your requirements

LET US QUOTE YOUR REQUIREMENTS!

Testimonials

“Thank you very much for your help, you have very good after sale services. Your technical support Engineer was very knowledgeable and helpful, I have no more problems, your product is highly recommended.”

-Paul

Product Menu

Click a category to expand/collapse it

Hover over item to view more informa

- RS232 TO RS485 CONVERTERS
  - RS232 To RS485 Converter
  - Compact Industrial RS232 To RS485 Converter
  - 25 Pin RS232 To RS485 Converter
  - Isolated RS232 To RS485 Converter
  - Industrial RS232 to RS485/RS422 Converter
  - Powered Isolated RS232 to 2-Wire RS485/RS422
  - Powered Isolated RS232 to 4-Wire RS485/RS422
  - **Full listing of RS232 to RS485 Converters**
- RS232 TO RS422 CONVERTERS
- SERIAL TO TTL CONVERTERS
- ISOLATORS & SUPPRESSORS
- SERIAL REPEATERS & HUBS
- USB ADAPTERS & HUBS
- FIBER OPTIC CONVERTERS
- ACCESSORIES

Secure Payement Gateway — COMODO SECURED Point to Verify™

5 Year Warranty

SerialComm is a leading manufacturer of high quality commercial and industrial data communication equipment. Our products are fully certified and come with a 30 day unconditional return guarantee and a 5 year manufacturer's warranty. When you buy SerialComm products you are buying the best quality, and that is very important when interfacing with expensive equipment. SerialComm products are industry proven are widely used by thousands of companies world-wide.

Here are some of our valued customers, just to name a few:

Allied Electronics	Honeywell Corp	NASA	The Boeing Company	Hewlett Packard
BAE Systems Corp	Intel Corp	Panasonic	Union Switch & Signal	IBM
Comcast Corp	Johnson Controls	Raytheon Corp	AT&T	ITT Corp
Harris Corp	Lockheed Martin	Siemens Corp	Cisco	L-3 Communications
Northrop Grumman	Princeton University	Seagate Technologies	General Electric	Mitre Corp
USAF Academy	Tyco Telecomm	Sirius Satellite Radio	Microsoft.	US Navy

EXHIBIT 4

SerialComm
Data Conversion Experts
McAfee SECURE TESTED DAILY 23-MAR
BBB
My Cart
by product name, part number... GO

Home | Products | Wholesale | Downloads | Knowledge Base | Distributors | Contact Us

24/7 Tech Support
Call us at: 1-877-218-7964
Click for Live Chat - ONLINE -

Shipping Solutions
FedEx Express
ups DHL
Free World-Wide Shipping
Same Day Express Delivery

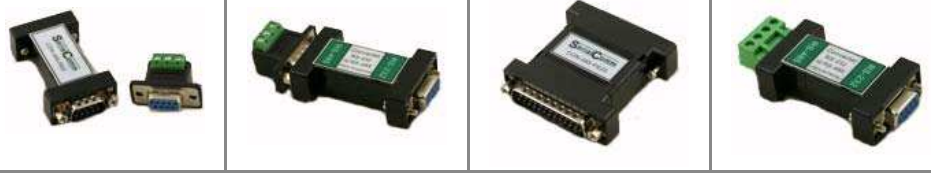
Safety Assured
RoHS FC CE ISO 9001
TÜVRheinland® Precisely Right.
Click for Testing Info

Payment Options
VISA MasterCard DISCOVER AMERICAN EXPRESS PayPal Purchase Orders
All Major Payment Forms Accepted!

Satisfaction Guaranteed!
5 Year Warranty
5 Year Warranty
+ 30 Day Money Back Guarantee
Click for Our Quality & Price Guarantee

RS232 to RS485 Converters

CERTIFICATIONS: RoHS CE FC ISO 9001 | CERTIFICATE DECLARATIONS



SerialComm is a leading manufacturer of high quality RS232 to RS485 converters and isolated converters Our converter products can be used for any application whether it is commercial or industrial. If you need protection, reliability, and power efficiency at low prices we have the solution. Our RS232 to RS485 adapters come in a number of varieties and form factors including port powered and externally powered as well as 9 and 25 pin formats. Our converters provide a safe and easy solution to your data communication requirements.

HOME
RS232 TO RS485 CONVERTERS
RS232 to RS485 Converter
25 Pin RS232 to RS485 Converter
Compact Industrial RS232 to RS485 Converter
Isolated RS232 to RS485 Converter
Industrial RS232 to RS485/RS422 Converter
Powered Isolated RS232 to 2W RS485/RS422
Powered Isolated RS232 to 4W RS485/RS422
RS232 TO RS422 CONVERTERS
RS232 to RS422 Converter
25 Pin RS232 to RS422 Converter
RS232 to RS485 / RS422 Converter
Powered Isolated RS232 to 2W RS485/RS422
Powered Isolated RS232 to 4W RS485/RS422
SERIAL TO TTL CONVERTERS
RS232 to 5V TTL Converter
RS232 to 3.3V TTL Converter
RS485 to 5V TTL Converter
ISOLATORS & SURGES SUPRESSORS
Industrial 3-Wire RS232 Isolator
Industrial RS485 Surge Suppressor
Industrial Ethernet Surge Suppressor
SERIAL REPEATERS & HUBS
RS232 Isolated 3-Wire Repeater Pair
RS232 Isolated 7-Wire Repeater Pair
USB ADAPTERS & HUBS
USB to RS232 Adapter
USB to RS485 Adapter
USB to RS485/RS422 Adapter
USB to 5V TTL Adapter

RS232 to RS485 Converter

Price: $22.95

Model: CON-485-PE9

The **CON-485-PE9** is a high quality port powered bi-directional RS232 to RS485 converter with ESD and surge protection in a 9 pin format. Since it is port powered, no external power is needed. The RS232 to RS485 converter has a DB9 female connector on the RS232 side and either a DB9 male connector or 3-way terminal block on the RS485 side. The separate terminal block is included with purchase. Operates reliably from 300 to 115.2K Baud.

Quantity: Add to Cart

Industrial RS232 to RS485 Converter with Optional EXT PWR

Price: $26.95

Model: CON-485-PIE

The **CON-485-PIE** is a high quality industrial-grade port powered or external powered bi-directional RS232 to RS485 converter with ESD and surge protection in a 9 pin format. This converter is port powered or can use optional 5V external power. If you do not know port power will work in your application this converter is a good solution. The RS232 to RS485 converter has a DB9 female connector on the RS232 side and either a DB9 male connector or 4-way terminal block on the RS485 side. The separate terminal block is included with purchase. Operates reliably from 300 to 115.2K Baud.

Quantity:

Select Option:

Compact Industrial RS232 To RS485 Converter

Model: CON-485-PI9

The **CON-485-PI9** is a high quality compact industrial-grade port powered bi-directional RS232 to RS485 converter with ESD and surge protection in a 9 pin format. Since it is port powered, no external power is needed. The RS232 to RS485 converter has a DB9 female connector on the RS232 side and an attached 4-way terminal block on the RS485 side. Operates reliably from 300 to 115.2K Baud.

25 Pin RS232 To RS485 Converter

Model: CON-485-PE25

The **CON-485-PE25** is a high quality port powered bi-directional RS232 to RS485 converter with ESD and surge protection in a 25 pin format. Since it is port

USB to 3.3V TTL Adapter

FIBER OPTIC MEDIA CONVERTERS

RS232 to Fiber Optic - SM

RS232 to Fiber Optic - MM

RS232/RS485/RS422 to Fiber Optic - SM

RS232/RS485/RS422 to Fiber Optic - MM

10/100M Ethernet to Fiber Optic - SM

10/100M Ethernet to Fiber Optic - MM

10/100/1000M Ethernet to Fiber Optic - SM

10/100/1000M Ethernet to Fiber Optic - MM

ACCESSORIES

Gender Changers

Terminal Blocks

Serial Data Accessories

Fiber Optic Test Cables

powered, no external power is needed. The RS232 to RS485 converter has a DB25 female connector on the RS232 side and a DB25 male connector on the RS485 side. Operates reliably from 300 to 115.2K Baud.

Industrial RS232 to RS485 / RS422 Converter

Price: $39.95

Model: CON-485/422-PI9

The **CON-485/422-PI9** is a high quality industrial-grade port powered bi-directional RS232 to RS485 or RS422 converter with ESD and surge protection in a 9 pin format. Since it is port powered, no external power is required. The RS232 to RS485 / RS422 converter has a DB9 female connector on the RS232 side and either a DB9 male connector of 5-way terminal block on the RS485 / RS422 side. The separate terminal block is included with purchase. Operates reliably from 300 to 115.2K Baud.

Quantity:

Add to Cart

External Powered Isolated RS232 To 2W RS485/ 4W RS422

Price: $59.95

Model: CON-485-422-EE9

The **CON-485/422-EE9** is a high quality industrial-grade standalone, panel, or rack mounted externally powered bi-directional opto-isolated RS232 to 2-wire RS485 or 4-wire RS422 converter with ESD and surge protection in a 9 pin or RJ45 format. The unit is externally powered, so no external power is required. You don't need to worry about your RS232 device's ability to port power the converter. The converter features optical isolation which provides effective protection for your devices from voltage surges, ground loop conditions and noise problems. The externally powered, opto-isolated RS232 to RS485 / RS422 converter has a DB9 female connector on the RS232 side and either a DB9 male, RJ45 or 5-way terminal block on the RS485 / RS422 side. The separate terminal block is included with purchase. Operates reliably from 0 to 115.2K Baud.

Quantity:

Select Connector:

Add to Cart

External Powered Isolated RS232 To 4W RS485/ 4W RS422

Price: $59.95

Model: CON-485-422-EE4

The **CON-485/422-EE4** is a high quality industrial-grade standalone, panel, or rack mounted externally powered bi-directional opto-isolated RS232 to 4-wire RS485 or 4-wire RS422 converter with ESD and surge protection in a 9 pin or RJ45 format. The unit is externally powered so you do not have to worry about your RS232 device's ability to port power the converter. The converter features optical isolation which provides effective protection for your devices from voltage surges, ground loop conditions and noise problems. The externally powered, opto-isolated RS232 to RS485 / RS422 converter has a DB9 female connector on the RS232 side and either a DB9 male, RJ45 or 5-way terminal block on the RS485 / RS422 side. The separate terminal block is included with purchase. Operates reliably from 0 to 115.2K Baud.

Quantity:

Select Connector:

Add to Cart

Opto-Isolated RS232 To RS485 Converter

Model: ISO-485-PI9

The **ISO-485-PI9** is a high quality industrial-grade bi-directional opto-isolated port powered RS232 to RS485 converter with ESD and surge protection in a 9 pin format. It provides 2500V optical isolation which effectively protects your devices from voltage surges, ground loop conditions and noise problems. The opto-isolated RS232 to RS485 converter has a DB9 female connector on the RS232 side and either a DB9 male connector or 3-way terminal block on the RS485 side. The separate terminal block is included with purchase. Operates reliably from 300 to 57.6K Baud.

EXHIBIT 5

Certificate of Registration

This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

Maria A. Pallante

Acting Register of Copyrights, United States of America

Registration Number

TXu 1-710-401

Effective date of registration:

December 1, 2010

Title

Title of Work: http://www.serialcomm.com

Completion/Publication

Year of Completion: 2010

Author

- **Author:** Mordy Naftaly

Author Created: text, photograph(s), Source Code

Citizen of: United States **Domiciled in:** United States

Year Born: 1966

Copyright claimant

Copyright Claimant: Mordy Naftaly

1298 Evans Road, Wall Township, NJ, 07719, United States

Certification

Name: D. Merlion

Date: November 18, 2010

Applicant's Tracking Number: C404915

EXHIBIT 6

Certificate of Registration

This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

Marybeth Peters

Register of Copyrights, United States of America

Registration Number
TXu 1-642-827

Effective date of registration:
July 14, 2009

Title

Title of Work: Collection of Serialcomm Datasheets

Completion/ Publication

Year of Completion: 2009

Author

- **Author:** Jeddy Ventures LLC, dba SerialComm

Author Created: text, translation, photographs, compilation, editing, artwork

Work made for hire: Yes

Citizen of: United States **Domiciled in:** United States

Year Born: 1966

Copyright claimant

Copyright Claimant: Jeddy Ventures LLC, dba SerialComm

1298 Evans Road, Wall Township, NJ, 07719, United States

Rights and Permissions

Name: Mordy Naftaly

Email: mordynaftaly52@gmail.com **Telephone:** 732-927-4005

Address: 1298 Evans Road

Wall Township, NJ 07719 United States

Certification

Name: Mordy Naftaly

Date: July 14, 2009

EXHIBIT 7

SIMA S. ENTERPRISES
DATA COMMUNICATION SOLUTIONS

RS232-CONVERTERS.COM

Click for Live Chat - ONLINE
Call us at 1-877-647-7434

SerialComm Data Conversion Experts

Home | Products | Wholesale | Downloads | FAQs | Contact Us

Serial / RS232 / RS485 / RS422 / TTL Converter Products
USB Adapters - Fiber Optic Converters - Ethernet Converters

1 2 3 4 5

Free Shipping
FedEx Guaranteed Express Shipping on Time
5 Year Warranty
PayPal Purchase Orders

Worry Free Guarantee!

- 30 Day Money Back Guaranteed.
- 5 Year Manufacturer's Warranty.
- 24/7 Sales and Technical Support.
- Credit Cards and Purchase Orders are Accepted.
- Free Same Day Worldwide Shipping.

RoHS CE FC ISO 9001 TÜV

- Fast Free Shipping Worldwide • Guaranteed U.S. Express Untill 7PM EST
- 30-Day Money Back Guarantee • 5 Year Guaranteed Replacement Warranty
- 24/7 Phone Customer and Technical • Volume Discounts & Reseller Discounts

RS232 to RS485 CONVERTERS

RS232 To RS485 Converter | Model CON-485-PE9 |

The **SerialComm CON-485-PE9** is a high quality port powered RS232 to RS485 converter with ESD and surge protection in a 9 pin format and is enclosed in a resilient housing. The CON-485-PE9 is bi-directional which means it will convert from RS232 to RS485 or RS485 to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These converters include both 9-pin DB9 for simple cable installation or included 3-way terminal block for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $22.95**

Our Guarantee
Order Here
In Stock

Industrial RS232 To RS485 with Optional Ext. Pwr | Model CON-485-PIE |

The **SerialComm CON-485-PIE** is a high quality industrial-grade port powered or externally powered RS232 to RS485 converter with ESD and surge protection in a 9 pin format and is enclosed in a resilient housing. The CON-485-PIE is bi-directional which means it will convert from RS232 to RS485 or RS485 to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These RS232 to RS485 converters include both 9-pin DB9 for simple cable installation or included 4-way terminal block for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $26.95**

Our Guarantee
Order Here
In Stock

Industrial Compact RS232 To RS485 Converter | Model CON-485-PI9 |

The **SerialComm CON-485-PI9** is a compact, high quality industrial-grade, port powered RS232 to RS485 converter with ESD and surge protection in a 9 pin format and is enclosed in a resilient housing. The CON-485-PI9 is bi-directional which means it will convert from RS232 to RS485 or RS485 to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These RS232 to RS485 converters are compact and has an attached (removable) 4-way terminal block for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $29.95**

Our Guarantee
Order Here
In Stock

25 Pin RS232 To RS485 Converter | Model CON-485-PE25 |

The **SerialComm CON-485-PE25** is a high quality port powered RS232 to RS485 converter with ESD and surge protection in a 25 pin format and is enclosed in a resilient housing. The CON-485-PE25 is bi-directional which means it will convert from RS232 to RS485 or RS485 to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These RS232 to RS485 converters feature 25-pin DB25 for simple cable installation. **300 to 115.2K Baud Operation.** **Price: $34.95**

Our Guarantee

Industrial opto-Isolated RS232 To RS485 Converter | Model ISO-485-PI9 |

The **SerialComm ISO-485-PI9** is a high quality industrial-grade opto-isolated port-powered RS232 to RS485 converter with ESD and surge protection in a 9 pin format and is enclosed in a resilient housing. The ISO-485-PI9 is bi-directional which means it will convert from RS232 to RS485 or RS485 to RS232 while providing 2500V optical isolation. Our converters are protected by a 5 year warranty and 30 day money back guarantee. This RS232 to RS485 converter optically isolated featuring isolation circuitry that protects your devices from voltage surges, noise and ground loop conditions. These isolated RS232 to RS485 converters include both 9-pin DB9 for simple cable installation or included 3-way terminal block for convenient screw terminal installation. **300 to 57.6K Baud Operation.** **Price: $69.95**

Industrial RS232 to RS485 / RS422 Converter | Model CON-485/422-PI9 |

The **SerialComm CON-485/422-PI9** is a high quality industrial-grade, port powered RS232 to RS485 / RS422 converter with ESD and surge protection in a 9 pin format and is enclosed in a resilient housing. The CON-485/422-PI9 is bi-directional which means it will convert from RS232 to RS485 / RS422 or RS485 / RS422 to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These RS232 to RS485 / RS422 converters feature a multifunctional included 5-way terminal block for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $39.95**

Powered Isolated RS232 To 2-Wire RS485/ RS422 | Model CON-485/ 422-EE9 |

The **SerialComm CON-485/ 422-EE9** is high performance industrial-grade standalone, panel or rack mounted externally powered opto-isolated RS232 to 2-Wire RS485 or 4-Wire RS422 converter enclosed in a

Our Guarantee
Order Here

Questions?
Click for Live Chat
OR Call
1-877-647-7434

FedEx Express
Guaranteed Express Shipping
Until 7:00pm EST.

Shipping Rates:
Within USA
- Ground: FREE
- 2 Day from $8
- Overnight from $12

International:
- Airmail: FREE
- FREE Express > $200

heavy-duty steel housing with ESD and surge protection in a 9 pin or RJ45 format. The CON-485/422-EE9 is bi-directional which means it will convert from RS232 to RS485 / RS422 or RS485 / RS422 to RS232 while providing 2500V optical isolation up to 115.2K baud. The unit can be used to extend RS232 data up to 6000ft (1.8km). It is also externally powered so you do not have to worry about your RS232 device's ability to port-power the converter. This converter features optical isolation circuitry, which effectively protects your devices from voltage surges, noise and ground loop conditions. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These RS232 to RS485 / RS422 converters include 9-pin DB9 and RJ45 for simple cable installation as well as included 5-terrminal block for convenient screw terminal installation, 120/220VAC power supply and extension cable. **0 to 115.2K Baud Operation.** **Price: $59.95**

In Stock

Powered Isolated RS232 To 4-Wire RS485/ RS422 | Model CON-485/ 422-EE4 |

The **SerialComm CON-485/ 422-EE4** is a high performance industrial-grade standalone, panel or rack mounted externally powered opto-isolated RS232 to 4-Wire RS485 or 4-Wire RS422 converter enclosed in a heavy-duty steel housing with ESD and surge protection in a 9 pin or RJ45 format. The CON-485/422-EE4 is bi-directional which means it will convert from RS232 to RS485 / RS422 or RS485 / RS422 to RS232 while providing 2500V optical isolation up to 115.2K baud. The unit can be used to extend RS232 data up to 6000ft (1.8km). It is also externally powered so you do not have to worry about your RS232 device's ability to port power the converter. This converter features optical isolation circuitry, which effectively protects your devices from voltage surges, noise, and ground loop conditions. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These 4-wire RS232 to RS485/RS422 converters include 9-pin DB9 and RJ45 for simple cable installation as well as included 5-terrminal block for convenient screw terminal installation, 120/220VAC power supply and extension cable. **0 to 115.2K Baud Operation.** **Price: $59.95**

Our Guarantee
Order Here
In Stock

RS232 to RS422 CONVERTERS

RS232 to RS422 Converter | Model CON-422-PE9 |

The **SerialComm CON-422-PE9** is a high quality port-powered RS232 to RS422 converter with ESD and surge protection in a 9 pin format and is enclosed in a resilient housing. The CON-422-PE9 is bi-directional which means it will convert from RS232 to RS422 or RS422 to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These RS232 to RS422 converters include both 9-pin DB9 for simple cable installation or included 3-way terminal block for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $22.95**

Our Guarantee
Order Here
In Stock

Industrial RS232 to RS422 with Optional Ext. Pwr | Model CON-422-PIE |

The **SerialComm CON-422-PIE** is a high quality, industrial-grade port-powered or externally powered RS232 to RS422 converter with ESD and surge protection and is enclosed in a resilient housing. The CON-422-PIE is bi-directional which means it will convert from RS232 to RS422 or RS422 to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These port-powered or 5V externally powered RS232 to RS422 converters include both 9-pin DB9 for simple cable installation or included 4-way terminal block for convenient screw terminal installation. **300 to 115.2K Baud Operation.**
Price: $26.95

Our Guarantee
Order Here
In Stock

25 Pin RS232 To RS422 Converter | Model CON-422-PE25 |

The **SerialComm CON-422-PE25** is a high quality port-powered RS232 to RS422 converter with ESD and surge protection in a 25 pin format and is enclosed in a resilient housing. The CON-422-PE25 is bi-directional which means it will convert from RS232 to RS422 or RS422 to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These port-powered RS232 to RS422 converters feature 25-pin DB25 for simple cable installation. **300 to 115.2K Baud Operation.**
Price: $34.95

Our Guarantee
Order Here
In Stock

Industrial RS232 to RS485 / RS422 Converter | Model CON-485/ 422-PI9 |

The **SerialComm CON-485/ 422-PI9** is a high quality industrial-grade, port powered RS232 to RS485 / RS422 converter with ESD and surge protection in a 9 pin format and is enclosed in a resilient housing. The CON-485/422-PI9 is bi-directional which means it will convert from RS232 to RS485 / RS422 or RS485 / RS422 to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These RS232 to RS485 / RS422 converters feature a multifunctional included 5-way terminal block for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $39.95**

Our Guarantee
Order Here
In Stock

Powered Isolated RS232 To 2-Wire RS485/ RS422 | Model CON-485/ 422-EE9 |

The **SerialComm CON-485/ 422-EE9** is high performance industrial-grade standalone, panel or rack mounted externally powered opto-isolated RS232 to 2-Wire RS485 or 4-Wire RS422 converter enclosed in a heavy-duty steel housing with ESD and surge protection in a 9 pin or RJ45 format. The CON-485/422-EE9 is bi-directional which means it will convert from RS232 to RS485 / RS422 or RS485 / RS422 to RS232 while providing 2500V optical isolation up to 115.2K baud. The unit can be used to extend RS232 data up to 6000ft (1.8km). It is also externally powered so you do not have to worry about your RS232 device's ability to port-power the converter. This converter features optical isolation circuitry, which effectively protects your devices from voltage surges, noise and ground loop conditions. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These RS232 to RS485 / RS422 converters include 9-pin DB9 and RJ45 for simple cable installation as well as included 5-terrminal block for convenient screw terminal installation, 120/220VAC power supply and extension cable. **0 to 115.2K Baud Operation.** **Price: $59.95**

Powered Isolated RS232 To 4-Wire RS485/ RS422 | Model CON-485/ 422-EE4 |

The **SerialComm CON-485/ 422-EE4** is a high performance industrial-grade standalone, panel or rack mounted externally powered opto-isolated RS232 to 4-Wire RS485 or 4-Wire RS422 converter enclosed in a heavy-duty steel housing with ESD and surge protection in a 9 pin or RJ45 format. The CON-485/422-EE4 is bi-directional which means it will convert from RS232 to RS485 / RS422 or RS485 / RS422 to RS232 while providing 2500V optical isolation up to 115.2K baud. The unit can be used to extend RS232 data up to 6000ft (1.8km). It is also externally powered so you do not have to worry about your RS232 device's ability to port power the converter. This converter features optical isolation circuitry, which effectively protects your devices from voltage surges, noise, and ground loop conditions. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These 4-wire RS232 to RS485/RS422

converters include 9-pin DB9 and RJ45 for simple cable installation as well as included 5-terrminal block for convenient screw terminal installation, 120/220VAC power supply and extension cable. **0 to 115.2K Baud Operation.** **Price: $59.95**

Our Quality Guarantee

We back our high quality products with a 30 DAY Satisfaction Guarantee and a 5 year Manufacturer's Warranty. When you buy SerialComm products you are buying the best quality, and that is very important when interfacing with expensive equipment. SerialComm products are widely used by industry leaders.

Here are some of our valued customers, just to name a few:

• Allied Electronics	• Honeywell Corp	• NASA	• The Boeing Company	• Hewlett Packard
• BAE Systems Corp	• Intel Corp	• Panasonic	• Union Switch & Signal	• IBM
• Comcast Corp	• Johnson Controls	• Raytheon Corp	• AT&T	• ITT Corp
• Harris Corp	• Lockheed Martin	• Siemens Corp	• Cisco	• L-3 Communications
• Northrop Grumman	• Princeton University	• Seagate Technologies	• General Electric	• Mitre Corp
• USAF Academy	• Tyco Telecomm	• Sirius Satellite Radio	• Microsoft.	• US Navy

5 Year Warranty | Shipping
5 Year Warranty | World Shipping
FedEx Express
FedEx Next-Day Shipping

RS232 / RS485 TO TTL CONVERTERS

RS232 to 5V TTL Converter | Model TTL-232-5P |

The **SerialComm TTL-232-5P** is a high quality port-powered RS232 to 5V TTL converter with ESD and surge protection in a 9 pin format and is enclosed in a resilient housing. The TTL-232-5P is bi-directional which means it will convert from RS232 to 5V TTL or 5V TTL to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These port powered RS232 to 5V TTL converters have both 9-pin DB9 for simple cable installation or included 5-way terminal block for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $23.95**

Our Guarantee
Order Here
In Stock

Industrial RS232 to 5V TTL with Optional Ext. Pwr. | Model TTL-232-5IE |

The **SerialComm TTL-232-5IE** is a high quality, industrial-grade port-powered or externally powered RS232 to 5V TTL converter with ESD and surge protection in a 9 pin format and is enclosed in a resilient housing. The TTL-232-5IE is bi-directional which means it will convert from RS232 to 5V TTL or 5V TTL to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These port powered or 5V external powered RS232 to 5V TTL converters have both 9-pin DB9 for simple cable installation or included 4-way terminal block for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $28.95**

Our Guarantee
Order Here
In Stock

RS232 to 3.3V TTL Converter | Model TTL-232-33P |

The **SerialComm TTL-232-33P** is a high quality port powered RS232 to 3.3V TTL converter with ESD and surge protection in a 9 pin format and is enclosed in a resilient housing. The TTL-232-33P is bi-directional which means it will convert from RS232 to 3.3V TTL or 3.3V TTL to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These port powered RS232 to 3.3V TTL converters have both 9-pin DB9 for simple cable installation or included 5-way terminal block for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $23.95**

Our Guarantee
Order Here
In Stock

Industrial RS232 to 3.3V TTL with Optional Ext. Pwr. | Model TTL-232-33IE |

The **SerialComm TTL-232-33IE** is a high quality, industrial-grade port-powered or externally powered RS232 to 3.3V TTL converter with ESD and surge protection in a 9 pin format and is enclosed in a resilient housing. The TTL-232-33IE is bi-directional which means it will convert from RS232 to 3.3V TTL or 3.3V TTL to RS232. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These port powered or 5V externally powered RS232 to 3.3V TTL converters have both 9-pin DB9 for simple cable installation or included 4-way terminal block for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $28.95**

Our Guarantee
Order Here
In Stock

RS485 TO 5V TTL CONVERTER | Model TTL-485-5P |

The **SerialComm TTL-485-5P** is a high quality externally powered RS485 to 5V TTL converter with ESD and surge protection and is enclosed in a resilient housing . The TTL-485-5P is bi-directional which means it will convert from RS485 to 5V TTL or 5V TTL to RS485. It can also extend the TTL distance up to 4000 feet (1.2 km). Our converters are protected by a 5 year warranty and 30 day money back guarantee. These externally powered RS485 to 5V TTL converters have both 9-pin DB9 for simple cable installation or two included 5-way terminal blocks for convenient screw terminal installation and a 120/220VAC power supply. **300 to 115.2K Baud Operation.** **Price: $37.95**

Our Guarantee
Order Here

OPTO-ISOLATORS & SURGE SUPPRESSORS

Industrial Optically Isolated 3-Wire RS232 Isolator | Model ISO-232-3P9 |

The **SerialComm ISO-232-3P9** is a high quality industrial-grade 3-wire (TX, RX, GND) opto-isolated port powered RS232 isolator with ESD and static protection in a 9 pin format and is enclosed in a resilient housing. ISO-232-3P9 is bi-directional and will provide signal 5000V optical isolation to any standard serial RS232 device providing voltage surge, ground loop and noise protection. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These 3-wire opto-isolated port powered RS232 isolators feature 9-pin DB9 for simple cable installation. **300 to 57.6K Baud Operation.** **Price: $31.95**

Industrial RS485 Surge Suppressor 2-wire | Model ISO-485-P |

The **SerialComm ISO-485-P** is a high quality industrial-grade passive 2-wire (485+ 485-) RS485 surge suppressor with built-in terminal blocks. The surge suppressor is compact and enclosed in a heavy-duty steel casing. It provides 3 levels of surge suppression and can protect any standard RS485 port from transients, peaks, and spikes caused by lightning and other power surges. The ISO-485-P can also resolve ground loop and noise problems. The ISO-485-P protects the 2 lines: 485+ and 485-. The unit is passive, therefore, no external power or flow control is required. Our converters are protected by a 5 year warranty

and 30 day money back guarantee. These RS485 surge suppressors have attached terminal blocks for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $34.95**

Industrial 10/100M Ethernet Surge Suppressor | Model ISO-ETH-P |

The **SerialComm ISO-ETH-P** is a high quality, industrial-grade passive 10/100M Ethernet surge suppressor. The surge suppressor is compact and enclosed in a heavy-duty steel casing. It provides 3 levels of surge suppression and can protect any standard Ethernet port from transients, peaks, and spikes caused by lightning and other power surges. The ISO-ETH-P can also resolve ground loop and noise problems. Our converters are protected by a 5 year warranty and 30 day money back guarantee. The unit is passive, therefore, no external power or flow control is required. These Ethernet surge suppressors have two RJ45 for convenient cable installation. **Up to 100Mbps Operation.** **Price: $39.95**

Our Guarantee
Order Here
In Stock

RS232 / RS485 / RS422 DATA REPEATERS

Pair Optically Isolated 3-Wire RS232 Repeaters | Model REP-232-3P |

The **SerialComm REP-232-3P** is a pair of high quality industrial-grade port powered 3-wire RS232 data line extenders with optical isolation in a 9 pin format and is enclosed in a resilient housings. The pair of REP-232-3P will extend the distance RS232 RX and TX data lines up to 4000 feet (1.2km) while providing voltage surge protection. The repeaters are 2500V opto-isolated to protect from lightning strikes, voltage surges. This product will also handle grounding issues and noise conditions as well. Our converters are protected by a 5 year warranty and 30 day money back guarantee. This pair of port powered RS232 repeaters has a 9-pin DB9 for simple cable installation or included 5-way terminal block for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $49.95**

Our Guarantee
Order Here
In Stock

Pair Optically Isolated 7-Wire RS232 Repeaters | Model REP-232-7P |

The **SerialComm REP-232-7P** is a pair of high quality industrial-grade port powered 7-wire RS232 data and handshake line extenders with ESD and surge protection. The pair of REP-232-7P will extend the distance of any RS232 RX and TX data lines as well as CTS, RTS, DTR and DSR handshake lines up to 4000 feet (1.2km). The repeaters are 2500V opto-isolated to protect from lightning strikes and voltage surges. This product will also handle grounding issues and noise conditions. Our converters are protected by a 5 year warranty and 30 day money back guarantee. This port powered 7-Wire RS232 repeater has DB9 for simple cable installation or included 8-way terminal blocks for convenient screw terminal installation. **300 to 115.2K Baud Operation.** **Price: $69.95**

Our Guarantee
Order Here
In Stock

USB TO RS232 / RS485 / RS422 ADAPTERS

USB to RS232 Adapter | Model USB-232-2 | XP/ VISTA/ WIN 7/ MAC/ LINUX

The **SerialComm USB-232-2** is a high quality professional USB to RS232 adapter with static and ESD protection in a 9 pin format and constructed with industrial grade components. The USB-232-2 is bi-directional which means it will convert from USB to RS232 and RS232 to USB. These USB to RS232 adapters features 9-pin DB9 for simple cable installation. Our converters are protected by a 5 year warranty and 30 day money back guarantee. This USB Converter utilizes the latest superior FTDI chipset and easy to install drivers are compatible with most Windows / MAC / LINUX operating systems including Windows 7, MAC OS 10 and Ubuntu. **300 to 460.8K Baud Operation.** **Price: $24.95**

Our Guarantee
Order Here
In Stock

USB to 4 Port RS232 Adapter | Model USB-4232 | XP/ VISTA/ WIN 7/ MAC/ LINUX

The **SerialComm USB-4232** is a high quality industrial-grade USB to 4 Port RS232 converter with ESD and surge protection in a 9 pin format. The USB-4232 is bi-directional which means it will convert from USB to 4 port RS232 or 4 port RS232 to USB. These USB to 4 Port RS232 converters feature (4) 9-pin DB9 for simple cable installation. Our converters are protected by a 5 year warranty and 30 day money back guarantee. This USB Converter utilizes the latest superior FTDI chipset and easy to install drivers are compatible with most Windows / MAC / LINUX operating systems including Windows 7, MAC OS 10 and Ubuntu. **300 to 115.2K Baud Operation.** **Price: $99.95**

Our Guarantee
Order Here
In Stock

USB to RS485 Adapter | Model USB-485B | XP/ VISTA/ WIN 7/ MAC/ LINUX

The **SerialComm USB-485B** is a high quality professional USB to RS485 adapter with ESD and surge protection in a 9 pin format and constructed with industrial grade components. The USB-485B is bi-directional so it can convert from USB to RS485 or RS485 to USB. The RS485 to USB to adapter features both 9-pin DB9 for simple cable installation or included 3-way terminal block for convenient screw terminal installation. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These USB RS485 converters utilize the latest superior FTDI chipset and easy to install drivers are compatible with most Windows / MAC / LINUX operating systems including Windows 7, MAC OS 10 and Ubuntu. **300 to 1 Mbps Baud Operation.** **Price: $36.95**

Our Guarantee

USB to RS485/ RS422 Adapter |

The **SerialComm USB-485C** is a high quality professional USB to RS485 / RS422 adapter with ESD and surge protection in a 9 pin format and constructed with industrial grade components. The USB-485C is bi-directional so it can convert from USB to RS485 / RS422 or RS485 / RS422 to USB. The RS485 or RS422 to USB adapter features both 9-pin DB9 for simple cable installation or included multifunctional 5-way terminal block for convenient screw terminal installation. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These USB to RS485 / RS422 converters utilize the latest superior FTDI chipset and easy to install drivers are compatible with most Windows / MAC / LINUX operating systems including Windows 7, MAC OS 10 and Ubuntu. **300 to 1 Mbps Baud Operation.** **Price: $39.95**

USB to 4 Port RS485/ RS422 | Model USB-4485 | XP/ VISTA/ WIN 7/ MAC/ LINUX

The **SerialComm USB-4485** is a high quality industrial-grade USB to 4 Port RS485 / RS422 converter with ESD and surge protection in a 9 pin format. The USB-4485 is bi-directional so it can convert from USB to 4 port RS485 / RS422 or 4 port RS485 / RS422 to USB. The 4 Port RS485 or RS422 to USB adapter features both (4) 9-pin DB9 for simple cable installation or included (4) multifunctional 6-way terminal block for convenient screw terminal installation. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These USB to 4 Port RS485 / RS422 converters utilize the latest superior FTDI chipset and easy to install drivers are compatible with most Windows / MAC / LINUX operating systems including Windows 7, MAC OS 10 and Ubuntu. **300 to 230,400 Baud Operation.** **Price: $129.95**

USB to TTL 5V Adapter | Model USB-TTL-5 | XP/ VISTA/ WIN 7/ MAC/ LINUX

The **SerialComm USB-TTL-5** is a high quality bi-directional USB to 5V TTL Converter with ESD and surge protection in a 9 pin format. It is a combination of the SerialComm USB-232-2 and TTL-232-5P Converters. The combination is bi-directional which means it will convert from USB to TTL or TTL to USB. The 5V TTL to USB converter features both 9-pin DB9 for simple cable installation or included 5-way terminal block for convenient screw terminal installation. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These USB to ttl converters utilize the latest superior FTDI chipset and easy to install drivers are compatible with most Windows / MAC / LINUX operating systems including Windows 7, MAC OS 10 and Ubuntu. **300 to 115.2K Baud Operation.** **Price: $49.95**

Our Guarantee
Order Here
In Stock

USB to TTL 3.3V Adapter | Model USB-TTL-33 | XP/ VISTA/ WIN 7/ MAC/ LINUX

The **SerialComm USB-TTL-33** is a high quality USB to 3.3V TTL Converter with ESD and surge protection in a 9 pin format. It is a combination of the SerialComm USB-232-2 and TTL-232-33P Converters. The combination is bi-directional which means it will convert from USB to TTL or TTL to USB. The 3.3V TTL to USB converter features both 9-pin DB9 for simple cable installation or included 5-way terminal block for convenient screw terminal installation. Our converters are protected by a 5 year warranty and 30 day money back guarantee. These USB to 3.3V converters utilize the latest superior FTDI chipset and easy to install drivers are compatible with most Windows / MAC / LINUX operating systems including Windows 7, MAC OS 10 and Ubuntu. **300 to 115.2K Baud Operation.** **Price: $49.95**

Our Guarantee
Order Here
In Stock

FIBER OPTIC MEDIA CONVERTERS

RS232 to Fiber Optic Media Converter - SM | Model 232-FIBER-SM |

RS232 to Fiber Optic Media Converter - MM | Model 232-FIBER-MM |

The **SerialComm 232-FIBER-SM (Single Mode) or 232-FIBER-MM (Multi-Mode)** are high quality industrial-grade externally powered standalone, panel or rack mounted Serial RS232 to Fiber Optic Converters enclosed in heavy-duty steel housings with ESD and surge protection. The Fiber Optic Media Converter comes with a RS232 Port DB9 connector and fiber optic connector in either **ST or SC Connectors**. Our converters are protected by a 5 year warranty and 30 day money back guarantee. The serial to fiber optic converter (fiber optic modem) supports asynchronous serial RS232 communications through fiber optic links. **300 To 120K Baud Operation.**

MM (Multi-Mode) ST or SC - $138.95 **SM (Single-Mode) ST or SC - $155.95**

Our Guarantee
Order Here
In Stock

RS232/ RS485/ RS422 to Fiber Optic Converter - SM |

RS232/ RS485/ RS422 to Fiber Optic Converter - MM |

The **SerialComm SER-FIBER-SM (Single Mode) or SER-FIBER-MM (Multi-Mode)** are high quality industrial-grade externally powered standalone, panel or rack mounted Serial RS232 / RS485 / RS422 to Fiber Optic Converters enclosed in heavy-duty steel housings with ESD and surge protection. Both the SM and MM converters come with either **ST or SC Connectors**. Our converters are protected by a 5 year warranty and 30 day money back guarantee. This versatile multifunctional media converter can be used to convert either the RS232 / RS485 / RS422 to fiber and back to any of RS232 / RS485 / RS422 ports using noise resistant fiber optic links. **300 To 460K Baud Operation.**

MM (Multi-Mode) ST or SC - $145.95 **SM (Single-Mode) ST or SC - $165.95**

Our Guarantee
Order Here
In Stock

10/ 100M Ethernet to Fiber Optic Converter - SM | Model ETH-FIBER-SM |

10/ 100M Ethernet to Fiber Optic Converter - MM | Model ETH-FIBER-MM |

The **SerialComm ETH-FIBER-SM (Single Mode) or ETH-FIBER-MM (Multi-Mode)** are high quality externally powered standalone, panel or rack mounted 10/100M Ethernet to Fiber Optic Converters enclosed in heavy-duty steel housings with ESD and surge protection. Both the SM and MM converters come with either **ST or SC Connectors**. Our converters are protected by a 5 year warranty and 30 day money back guarantee. The multi-functional Ethernet to fiber optic converter (fiber optic modem) supports data communication between 10/100BaseTX and 100BaseFX fiber optic links. **10Mbps To 200Mbps Baud Operation.**

MM (Multi-Mode) ST or SC - $66.95 **SM (Single-Mode) ST or SC - $69.95**

Our Guarantee
Order Here
In Stock

10/ 100/ 1000M Ethernet to Fiber Optic Converter - SM | ETH-FIBER-SM-2 |

10/ 100/ 1000M Ethernet to Fiber Optic Converter - MM | ETH-FIBER-MM-2 |

The **SerialComm ETH-FIBER-SM-2 (Single Mode) or ETH-FIBER-MM-2 (Multi-Mode)** are high quality externally powered standalone, panel or rack mounted 10/100/1000M Ethernet to Fiber Optic Converters enclosed in heavy-duty steel housings with ESD and surge suppression. Both the SM and MM converters come with either **ST or SC Connectors** Our converters are protected by a 5 year warranty and 30 day money back guarantee. The multi-functional Ethernet to fiber optic converter (fiber optic modem) supports data communication between 10/100/1000BaseTX and 1000Base-SX/LX fiber optic links. **10Mbps To 2000Mbps Baud Operation.**

MM (Multi-Mode) ST or SC - $169.95 **SM (Single-Mode) ST or SC - $189.95**

SERIAL AND FIBER OPTIC ACCESSORIES

Individual Gender Changers

We offer a wide range of Low Profile Serial Gender Changers for any application.

More Details
Our Guarantee
Order Here
In Stock

DB9 Male / DB Male - Price $5.95	**DB9 Female / DB9 Female** - Price $5.95
DB25 Male / DB25 Male - Price $5.95	**DB25 Female / DB25 Female** - Price $5.95
DB9 Male / DB25 Female - Price $7.95	**DB9 Female / DB25 Male** - Price $7.95
DB9 Male to Fem. Null Modem - Price $6.95	**DB9 Female / RJ45 female** - Price $7.95

Serial Communication Terminal Blocks

We offer a wide range of Gold Plated Terminal Blocks for your serial data application.

DB9 Fem. / 9 Pin Terminal - Price $9.95	DB15 Fem. / 15 Pin Terminal - Price $12.95
DB25 Fem. / 25 Pin Terminal - Price $15.95	USB Fem. / 4 Pin Terminal - Price $8.95
S-Video / 9 Pin Terminal - Price $9.95	

More Details
Our Guarantee
Order Here
In Stock

Serial Data Accessories

We offer serial communication accessories and cable to make applications a breeze.

DB9 Male/ Fem. 10ft Cable - Price $6.95	DB25 Male/ Fem. 10ft Cable - Price $7.95
DB9 Male/ Fem. Jumper Box - Price $11.95	DB25 Male/ Fem. Jumper Box Price $11.95
DB9/ DB25 Loop Back Tester - Price $7.95	

More Details
Our Guarantee
Order Here
In Stock

Fiber Optic Patch Cables

We offer 5 Meter Fiber Optic Test Cables to assist your troubles shooting of fiber optic converter applications.

SM Duplex ST/ ST - Price $17.95	SM Duplex SC/ SC - Price $17.95
MM 50/ 125 Duplex ST/ ST - Price $17.95	MM 50/ 125 Duplex SC/ SC - Price $17.95
MM 62.5/ 125 Duplex ST/ ST - Price $17.95	MM 62.5/ 125 Duplex SC/ SC - Price $17.95

More Details
Our Guarantee
Order Here
In Stock

- SECURE ONLINE ORDERING
- PHONE ORDERING
- CHECKS AND MONEY ORDERS
- PURCHASE ORDERS

SAME DAY SHIPPING

SSL

SIMA S. ENTERPRISES LLC
www.rs232-converters.com
email:sales@simaenterprises.com
PHONE:1-877-647-7434
FAX: 1-732-749-3598

NEW JERSEY ADDRESS
1933 Highway 35 Suite 105-365
Wall Township, NJ 07719

Questions?
Click for Live Chat
OR Call
1-877-647-7434

FedEx Express
Guaranteed
Express Shipping
Until 7:00pm EST.

Shipping Rates:
Within USA
► Ground: FREE
► 2 Day from $8
► Overnight from $12
International:
► Airmail: FREE
► FREE Express > $200

2006-2010 Copyright Protected - Sima S. Enterprises LLC - Terms & Conditions - Privacy Statement - PAGE PROTECTED BY COPYSCAPE DO NOT COPY

EXHIBIT 8

Int. Cl.: 9

Prior U.S. Cls.: 21, 23, 26, 36, and 38

United States Patent and Trademark Office

Reg. No. 3,416,200

Registered Apr. 22, 2008

TRADEMARK
PRINCIPAL REGISTER

COMMFRONT

ZHUANG LUXU (CHINA INDIVIDUAL)
BLK 279, #04-326 YISHUN STREET 22
SINGAPORE, SINGAPORE 760279

FOR: COMPUTER SOFTWARE FOR SERIAL AND TCP/IP COMMUNICATIONS, NAMELY, COMPUTER SOFTWARE FOR MONITORING, LOGGING, TESTING, ANALYZING, AND TROUBLE SHOOTING RS-232, RS-485, RS-422, TTL, COMS AND TCP/IP NETWORK COMMUNICATIONS, IN CLASS 9 (U.S. CLS. 21, 23, 26, 36 AND 38).

FIRST USE 10-1-2006; IN COMMERCE 10-1-2006.

THE MARK CONSISTS OF STANDARD CHARACTERS WITHOUT CLAIM TO ANY PARTICULAR FONT, STYLE, SIZE, OR COLOR.

SN 78-942,683, FILED 8-1-2006.

ELI HELLMAN, EXAMINING ATTORNEY

EXHIBIT 9

Certificate of Registration

Additional Certificate (17 U.S.C. 706)

This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

Maria A. Pallante

Register of Copyrights, United States of America

Registration Number
VA 1-792-214

Effective date of registration:
October 28, 2011

Title

Title of Work: COLLECTION OF COMMFRONT DATASHEETS 2007

Completion/ Publication

Year of Completion: 2007

Date of 1st Publication: July 7, 2007 **Nation of 1st Publication:** United States

Author

- **Author:** COMMFRONT TECHNOLOGIES, dba COMMFRONT

Author Created: text/poetry, compilation, 2-dimensional artwork, map/technical drawing

Work made for hire: Yes

Citizen of: Singapore

Copyright claimant

Copyright Claimant: COMMFRONT COMMUNICATIONS PTE. LTD., dba COMMFRONT
50 TAGORE LANE #5-05K, ENTREPENEUR CENTRE, SG, Singapore

Transfer Statement: ASSIGNMENT

Rights and Permissions

Organization Name: COMMFRONT COMMUNICATIONS PTE. LTD.

Email: sales@commfront.com **Telephone:** +65-629-6815 6000 0000-0000

Address: 50 TAGORE LANE #5-05K, ENTREPENEUR CENTRE
SG, Singapore

Certification

Name: MARK J. INGBER, ESQ.

Date: October 25, 2011

Registration #: VA0001792214

Service Request #: 1-679974203

THE INGBER LAW FIRM
ATTN: MARK J. INGBER
181 MILLBURN AVENUE
MILLBURN, NJ 07041

EXHIBIT 10

LIBRARY OF CONGRESS

Copyright Office of the United States

WASHINGTON, D.C.

THIS IS TO CERTIFY that the attached color photocopies are a true representation of the work entitled **COLLECTION OF COMMFRONT DATASHEETS 2007** deposited in the Copyright Office with claim of copyright registered under number **VA 1-792-214**.

THIS IS TO CERTIFY FURTHER, that beginning October 1, 2006 the Office discontinued the practice of stamping incoming deposits with accession date stamps. Incoming deposits are now identified with barcode labels.

IN WITNESS WHEREOF the seal of the Office is affixed hereto on February 8, 2012.

Maria A. Pallante
Register of Copyrights

By: Page Miller
Acting Supervisor
Records, Research and Certification Section
Information and Records Division

Use of this material is governed by the U.S. copyright law 17 U.S.C. 101 et seq.

RS-232/RS-485 Port-Powered Converter

Model: CVT-485-1

CommFront
Communications made easy

■ INTRODUCTION

The CVT-485-1 is a port-powered RS-232 to RS-485 converter, which can be used to convert any standard RS-232C port into a two-wire RS-485 port and vice versa. The unit is powered from the RS-232 data line, it also supports data direction auto-turnaround, therefore, no external power or flow control is required.

■ FEATURES

- Plug and play (Hot-pluggable)
- Port-powered, no external power or RTS, DTR required
- Data direction auto-turnaround, no flow control is required
- SMT technology
- Built-in Terminating Resistor (120Ω)
- Built-in Anti-Static protection circuit

■ SPECIFICATIONS

Power Source:	Port-powered from RS-232 data line
Data Rates:	Up to 115.2kbps
Distance:	Depending on power from RS-232 port, will transmit up to 1.2km (4000ft) at 19,200bps
Connector:	RS-232 Side: DB-9 Female; RS-485 Side: DB-9 Male; Termination Board: DB-9 Female and a 4-Way Terminal Block
Maximum number of drops:	128
End of Line Terminator:	120Ω (Built-in)
Anti-static protection:	Up to 15KV
Dimensions (H x W x D):	16 x 32 x 86 mm (0.63 x 1.3 x 3.4 in)
Weight:	36 g (1.27 oz)
Operating Temperature:	-10°C to 50°C (-50°F to 122°F)
Operating Humidity:	Up to 90% RH (no condensation)

■ PIN ASSIGNMENT

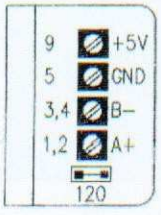
RS-232 Side (DB-9 Female Connector):

Pin:	1	4	6	7	8	2	3	5
Function/Internal Wiring:	Tied together			Tied together		TX	RX	GND

RS-485 Side (DB-9 Male Connector):

Pin:	1	2	3	4	5	6,7
Function:	A+		B-		GND	If shorted (Jumper ON - default), 120Ω End of Line Terminator is ON

Termination Board:



- Numbers on the left hand side indicate the pin assignment of DB-9 Male Connector (RS-485 side).
- DO NOT connect external power on +5V and GND, it is for measurement only. The unit will function correctly only when the voltage is higher than +5V (when RS-232 port is connected), otherwise, please check the connection.
- The unit comes with a built-in 120Ω End of Line Terminator, use it (Jumper ON - default) to prevent line interference if data rate is higher than 19,200bps or the distance is over 200m (650ft).

■ CONNECTIONS

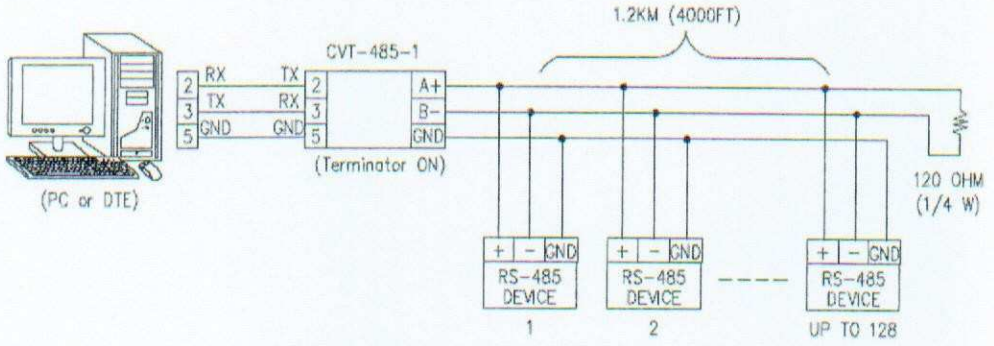


FIGURE 1: MASTER-SLAVE MULTI-DROP CONNECTIONS

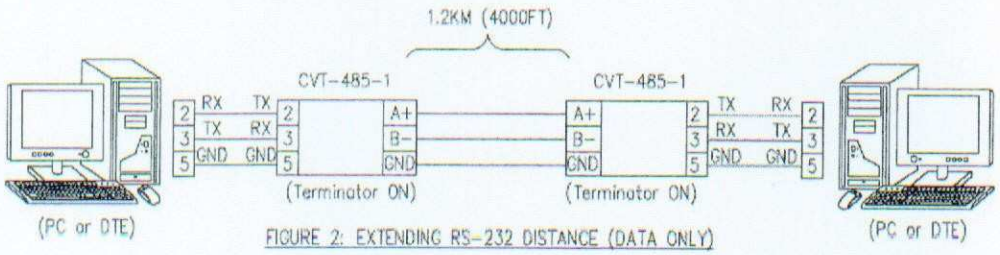


FIGURE 2: EXTENDING RS-232 DISTANCE (DATA ONLY)

■ INSTALLATION NOTES

- Connect PC's (or other DTE device's) COM port (or use a straight-through cable) to the RS-232 side of CVT-485-1, if it is a DCE device, use a cross-over (Null-Modem) Cable.
- If distance is over 200m (660ft) or Data Rate is higher than 19.2kbps, to prevent feedback from line interference, a 120Ω End of Line Resistor is required (Figure 1).
- Turn ON the 120Ω End of Line Terminator (Jumper ON) on both end of the communication line (Figure 2), to prevent feedback from line interference.
- Connect GND of CVT-485-1 and that of other RS-485 devices together for more reliable communications over a long distance.
- GND it is a Signal Ground, DO NOT connect to the earth.
- If CVT-485-1 is connected to outdoor devices, to prevent your PC or other devices from being damaged by lightning strikes, proper lightning protection is required.

RS-232/RS-485 Port-Powered Converter

Model: CVT-485-1

CommFront
Communications made easy

INTRODUCTION

The CVT-485-1 is a port-powered RS-232 to RS-485 converter, which can be used to convert any standard RS-232C port into a two-wire RS-485 port and vice versa. The unit is powered from the RS-232 data line; it also supports data direction auto-turnaround. Therefore, no external power or flow control is required.

FEATURES

- Plug and play (Hot-pluggable, Data format Auto-sensing & Self-adjusting).
- Port-powered, no external power or RTS, DTR required.
- Data direction auto-turnaround, no flow control is required.
- SMT technology.
- Built-in Terminating Resistor (120Ω).
- Built-in Static protection circuit (ESD).
- Built-in Short Circuit protection (RS-485 data line).

SPECIFICATIONS

Compatibility:	EIA/TIA RS-232C standard and RS-485 standard
Power Source:	Port power from RS-232 data line
Current Consumption:	Under 10mA
Baud Rates:	300 to 115,200bps (Auto-sensing & Self adjusting)
Distance:	RS-232 side: 5m (16ft); RS-485 side: Depending on power from RS-232 port, will transmit up to 1.2km (4000ft) at 19,200bps
Connector:	RS-232 Side: DB-9 Female; RS-485 Side: DB-9 Male; Termination Board: DB-9 Female and a 4-Way Terminal Block
Maximum number of drops:	128
End of Line Terminator:	120Ω (Built-in)
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	16 x 32 x 86 mm (0.63 x 1.3 x 3.4 in) (with Termination Board)
Weight:	36 g (1.27 oz) (with Termination Board)
Operating Temperature:	-10°C to 50°C (14°F to 122°F)
Operating Humidity:	Up to 90% RH (no condensation)

PIN ASSIGNMENT

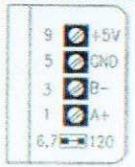
RS-232 Side (DB-9 Female Connector):

Pin:	1	4	6	7	8	2	3	5
Function/Internal Wiring:	Tied together			Tied together		TX	RX	GND

RS-485 Side (DB-9 Male Connector / Terminal Block):

Pin:	1	3	5	6,7
Terminal Block:	A+	B-	GND	Jumper (120)
Function:	RS485+	RS485-	GND	If shorted (Jumper ON - default), 120Ω End of Line Terminator is ON

Termination Board:



- Numbers on the left indicate the pin assignment of DB-9 Male Connector (RS-485 side).
- DO NOT connect external power to +5V pin, it is for measurement only. The unit will function correctly only when the voltage is around +5V (when RS-232 port is connected). Otherwise, please check the connection.
- The unit comes with a built-in 120Ω End of Line Terminator; use it (Jumper ON) only when the distance is over 200m (660ft).

CONNECTIONS

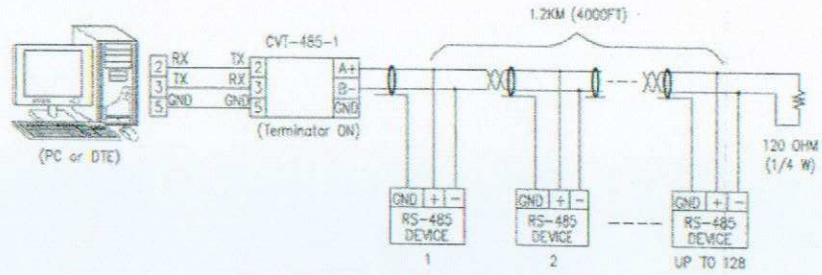


FIGURE 1: MASTER-SLAVE MULTI-DROP CONNECTIONS

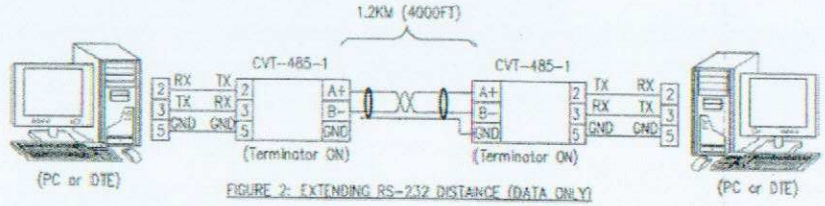


FIGURE 2: EXTENDING RS-232 DISTANCE (DATA ONLY)

INSTALLATION NOTES

- Connect PC's (or other DTE device's) COM port (or use a straight-through cable) to the RS-232 side of CVT-485-1, if it is a DCE device, use a cross-over (Null-Modem) Cable.
- The 120Ω End of Line Terminator adds heavy DC loading to a system, connect it (to prevent feedback) only when the RS-485's distance is over 200m (660ft).
- If CVT-485-1 is connected to any outdoor devices, please ensure that proper lightning protection is employed to prevent your devices from being damaged by lightning strikes.

TROUBLESHOOTING

- Measure pin +5V and GND with a Volt meter, and be sure that it is around +5VDC (when RS-232 port is connected). Otherwise, please check the connection.
- Perform a Loopback test by using CommFront's 232Analyzer software: Connect two (2) numbers of CVT-485-1 to your PC's COM ports and run two (2) instances of the 232Analyzer software, then send commands from one COM port, you should get an echo of the commands sent on the other COM port. By performing a simple Loopback test like this, you can test both the Transmitter and Receiver of the converter, which is very helpful when you are in doubt about the performance of your converter.

RS-232/RS-485/RS-422 Port-Powered Converter

Model: CVT-485_422-1

CommFront
Communications made easy

■ INTRODUCTION

The CVT-485_422-1 is a port-powered RS-232 to RS-485 / RS-232 to RS-422 converter, which can be used to convert any standard RS-232C port into a two-wire half-duplex RS-485 port, or a four-wire full-duplex RS-422 port and vice versa. The unit is powered from the RS-232 data line, it also supports data direction auto-turnaround, therefore, no external power or flow control is required.

■ FEATURES

- Plug and play (Hot-pluggable)
- Port-powered, no external power or RTS, DTR required
- Data direction auto-turnaround, no flow control is required
- SMT technology
- Built-in Terminating Resistor (120Ω)
- Built-in Anti-Static protection circuit

■ SPECIFICATIONS

Power Source:	Port-powered from RS-232 data line
Data Rates:	Up to 115.2kbps
Distance:	Depending on power from RS-232 port, will transmit up to 1.2km (4000ft) at 19,200bps
Connector:	RS-232 Side: DB-9 Female; RS-485 Side: DB-9 Male; Termination Board: DB-9 Female and a 6-Way Terminal Block
Maximum number of drops:	128
End of Line Terminator:	120Ω (Built-in)
Anti-static protection:	Up to 15KV
Dimensions (H x W x D):	16 x 32 x 90 mm (0.63 x 1.3 x 3.5 in)
Weight:	38 g (1.34 oz)
Operating Temperature:	-10°C to 50°C (-50°F to 122°F)
Operating Humidity:	Up to 90% RH (no condensation)

■ PIN ASSIGNMENT

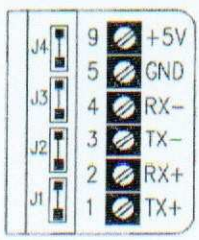
RS-232 Side (DB-9 Female Connector):

Pin:	1	4	6	7	8	2	3	5
Function/Internal Wiring:	Tied together			Tied together		TX	RX	GND

RS-485 Side (DB-9 Male Connector and Jumpers on Termination Board):

Pin:	1	2	3	4	5	6	7	8	4
Jumper:	J2 (default: ON)		J3 (default: ON)			J1 (default: ON)		J4 (default: ON)	
RS-485:	A+		B-		GND	(J1 ON)		J4 ON to turn ON 120Ω End of Line Terminator	
RS-422:	TX+	RX+	TX-	RX-	GND	(J1 OFF)			

Termination Board:



- Numbers on the left hand side indicate the pin assignment of DB-9 Male Connector (RS-485/RS-422 side).
- DO NOT connect external power on +5V and GND, it is for measurement only. The unit will function correctly only when the voltage is higher than +5V (when RS-232 port is connected), otherwise, please check the connection.
- The unit comes with a built-in 120Ω End of Line Terminator, use it (Jumper J4 ON) to prevent line interference if data rate is higher than 19,200bps or the distance is over 200m (650ft).

■ CONNECTIONS

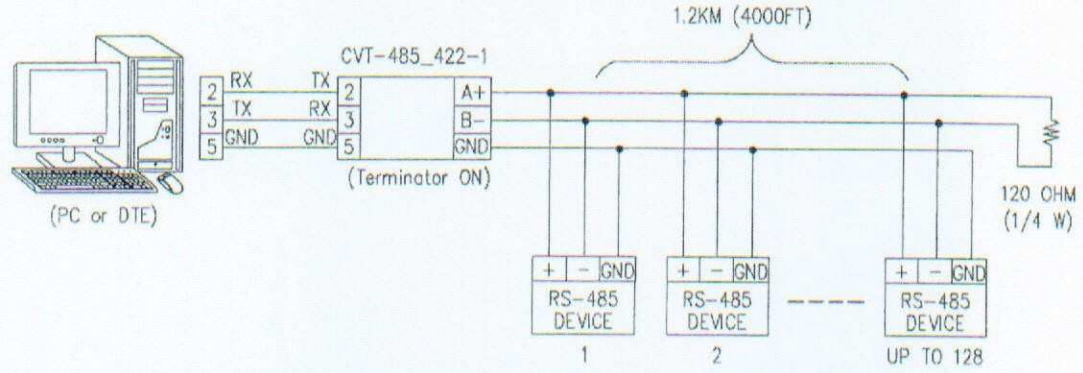


FIGURE 1: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-485)

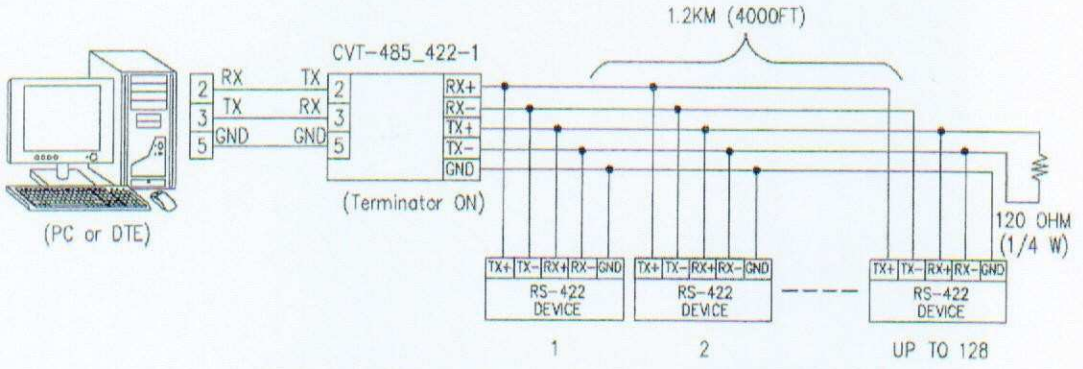


FIGURE 2: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-422)

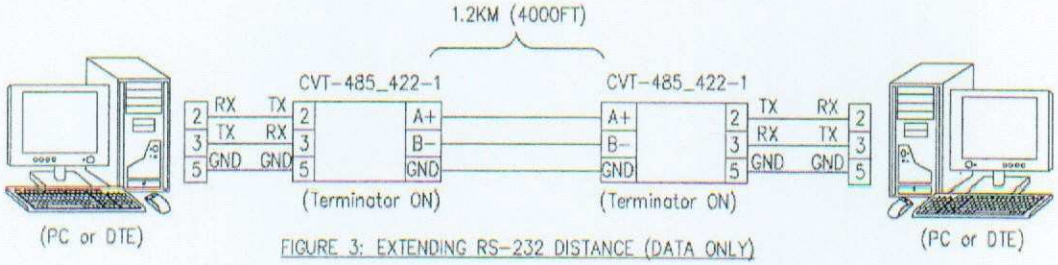


FIGURE 3: EXTENDING RS-232 DISTANCE (DATA ONLY)

■ INSTALLATION NOTES

- Connect PC's (or other DTE device's) COM port (or use a straight-through cable) to the RS-232 side of CVT-485_422-1, if it is a DCE device, use a cross-over (Null-Modem) Cable.
- Connect GND of CVT-485_422-1 and that of other RS-485/RS-422 devices together for more reliable communications over a long distance.
- If distance is over 200m (660ft) or Data Rate is higher than 19.2kbps, to prevent feedback from line interference, a 120Ω End of Line Resistor is required (Figure 1 & 2).
- Turn ON the 120Ω End of Line Terminator (Jumper J4 ON) on both end of the communication line (Figure 3), to prevent feedback from line interference.
- GND it is a Signal Ground, DO NOT connect to the earth.
- If CVT-485_422-1 is connected to outdoor devices, to prevent your PC or other devices from being damaged by lightning strikes, proper lightning protection is required.

RS-232/RS-485/RS-422 Port-Powered Converter

Model: CVT-485_422-1

CommFront®
Communications made easy

INTRODUCTION

The CVT-485_422-1 is a port-powered RS-232 to RS-485 / RS-232 to RS-422 converter, which can be used to convert any standard RS-232C port into a two-wire half-duplex RS-485 port, or a four-wire full-duplex RS-422 port and vice versa. The unit is powered from the RS-232 data line; it also supports data direction auto-turnaround. Therefore, no external power or flow control is required.

FEATURES

- Plug and play (Hot-pluggable, Data format Auto-sensing & Self-adjusting).
- Port-powered, no external power or RTS, DTR required.
- Data direction auto-turnaround, no flow control is required.
- SMT technology.
- Built-in Terminating Resistor (120Ω).
- Built-in Static protection circuit (ESD).
- Built-in Short circuit protection (RS-485/RS-422 data line).

SPECIFICATIONS

Compatibility:	EIA/TIA RS-232C standard and RS-485/RS-422 standard
Power Source:	Port power from RS-232 data line
Current Consumption:	Under 10mA
Baud Rates:	300 to 115,200bps (Auto-sensing & Self-adjusting)
Distance:	RS-232: 5m (16ft); RS-485 side: Depending on power from RS-232 port, will transmit up to 1.2km (4000ft) at 19,200bps
Connector:	RS-232 Side: DB-9 Female; RS-485/RS-422 Side: DB-9 Male; Termination Board: DB-9 Female and a 6-Way Terminal Block
Maximum number of drops:	128
End of Line Terminator:	120Ω (Built-in)
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	16 x 32 x 90 mm (0.63 x 1.3 x 3.5 in) (with Termination Board)
Weight:	38 g (1.34 oz) (with Termination Board)
Operating Temperature:	-10ºC to 50ºC (14ºF to 122ºF)
Operating Humidity:	Up to 90% RH (no condensation)

PIN ASSIGNMENT

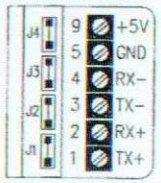
RS-232 Side (DB-9 Female Connector):

Pin:	1	4	6	7	8	2	3	5
Function/Internal Wiring:	Tied together			Tied together		TX	RX	GND

RS-485/RS-422 Side (DB-9 Male Connector / Termination Board):

Pin:	1	2	3	4	5	6	7	8	4
Jumper:	J2 (default: ON)		J3 (default: ON)			J1 (default: ON)		J4 (default: ON)	
RS-485:	A+ (J2 ON)		B- (J3 ON)		GND	(J1 ON)		J4 ON to turn ON 120Ω End of Line Terminator	
RS-422:	(J2 OFF)		(J3 OFF)		GND	(J1 OFF)			
	TX+	RX+	TX-	RX-					

Termination Board:



- Numbers on the left indicate the pin assignment of DB-9 Male Connector (RS-485/RS-422 side).
- DO NOT connect external power to +5V pin, it is for measurement only. The unit will function correctly only when the voltage on +5V pin is around +5V (when RS-232 port is connected). Otherwise, please check the connection.
- The unit comes with a built-in 120Ω End of Line Terminator; use it (Jumper J4 ON) only when the distance is over 200m (660ft).

CONNECTIONS

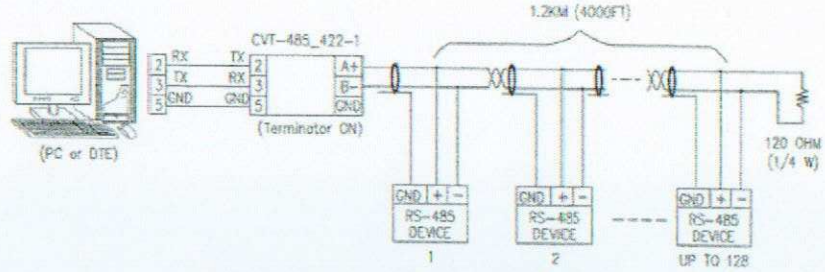


FIGURE 1: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-485)

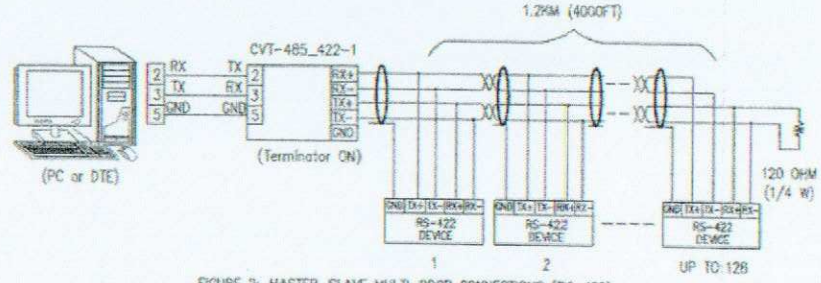


FIGURE 2: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-422)

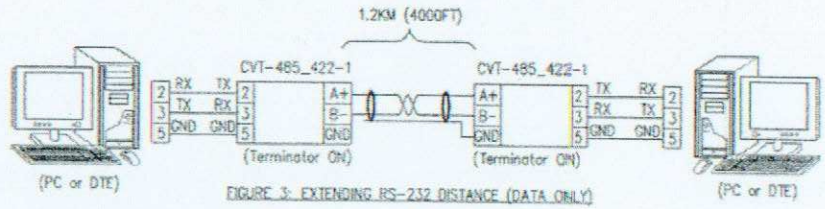


FIGURE 3: EXTENDING RS-232 DISTANCE (DATA ONLY)

INSTALLATION NOTES

- Connect PC's (or other DTE device's) COM port (or use a straight-through cable) to the RS-232 side of CVT-485_422-1, use a cross-over (Null-Modem) Cable for DCE device.
- The 120Ω End of Line Terminator adds heavy DC loading to a system, connect it only when the RS-485/RS-422's distance is over 200m (660ft).
- If CVT-485_422-1 is connected to any outdoor devices, please ensure that proper lightning protection is employed to prevent your devices from being damaged by lightning strikes.

TROUBLESHOOTING

- Measure pin +5V and GND with a Volt meter, and be sure that it is around +5VDC (when RS-232 port is connected). Otherwise, please check the connection.
- Perform a Loopback test by using CommFront's 232Analyzer software: Connect TX+ to RX+, TX- to RX-, then send commands from the 232Analyzer software. You should get an echo of the commands sent. By performing a simple Loopback test like this, you can test both the Transmitter and Receiver of the converter. This is very helpful when you are in doubt about the performance of your converter.

RS-232/TTL Port-Powered Converter

Model: TTL-232-1

CommFront
Communications made easy

INTRODUCTION

The TTL-232-1 is a port-powered RS-232 to TTL converter, which can be used to convert RS-232 to 5VDC TTL-compatible levels and vice versa. The unit is powered from the RS-232 data line; it also supports data direction auto-turnaround. Therefore, no external power or flow control is required.

FEATURES

- Plug and play (Hot-pluggable, Data format Auto-sensing & Self-adjusting).
- Port-powered, no external power or RTS, DTR required.
- Data direction auto-turnaround, no flow control is required.
- SMT technology.
- Built-in Static protection circuit (ESD).
- Built-in Short Circuit protection (TTL data line).

SPECIFICATIONS

Compatibility:	EIA/TIA RS-232C standard and TTL level
Power Source:	Port power from RS-232 data line
Current Consumption:	Under 10mA
Baud Rates:	300 to 115,200bps (Auto-sensing & Self-adjusting)
Distance:	RS-232 side: 5m (16ft); TTL side: 3m (10ft)
Connectors:	RS-232 Side: DB-9 Female; TTL Side: DB-9 Male; Termination Board: DB-9 Female and a 4-Way Terminal Block
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	16 x 32 x 88 mm (0.63 x 1.3 x 3.5 in) (with Termination Board)
Weight:	36 g (1.27 oz) (with Termination Board)
Operating Temperature:	-10°C to 50°C (14°F to 122°F)
Operating Humidity:	Up to 90% RH (no condensation)

PIN ASSIGNMENT

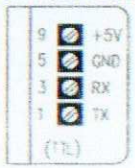
RS-232 Side (DB-9 Female Connector):

Pin:	4	6	7	8	2	3	5
Function/Internal Wiring:	Tied together		Tied together		TX	RX	GND

TTL Side (DB-9 Male Connector / Terminal Block):

DB-9 Male Connector:	1	3	5	9
Terminal Block:	TX	RX	GND	+5V
Function:	TTL OUT	TTL IN	GND	+5V

Termination Board:



- Numbers on the left indicate the pin assignment of DB-9 Connectors (TTL side).
- TX is the TTL Output, RX is the TTL Input.
- DO NOT connect external power to +5V pin, it is for measurement only. The unit will function correctly only when the voltage on +5V pin is around +5V (when RS-232 port is connected). Otherwise, please check the connection (Figure 1).

CONNECTIONS

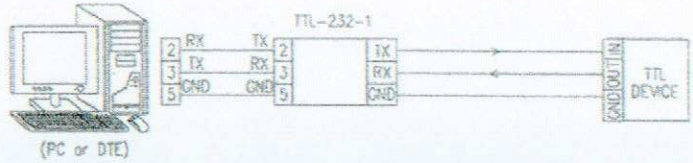


FIGURE 1: TTL-232-1 CONNECTION DIAGRAM

TTL SIGNAL LEVELS

TTL Input	TTL Output
High (>2.0V)	High (>2.4V)
Low (<0.8V)	Low (<0.4V)

TROUBLESHOOTING

- Measure pin +5V and GND with a Volt meter, be sure that it is around +5VDC (when RS-232 port is connected). Otherwise, please check the connection.
- Perform a Loopback test by using CommFront's 232Analyzer software: Connect TX (TTL Out) to RX (TTL In), and then send commands from the 232Analyzer software. You should get an echo of the commands sent. By performing a simple Loopback test like this, you can test both the Transmitter and Receiver of the RS-232/TTL converter, which is very helpful when you are in doubt about the performance of your converter.

RS-232 Isolator (Port-Powered / 3-Wire)

Model: CVT-232A-3

CommFront
Communications made easy

■ INTRODUCTION

The CVT-232A-3 optically isolates three (3) RS-232 lines (TX, RX and GND), which effectively protects your RS-232 devices from Transient Surges, Ground Loop, and Remote Lightning. Optical isolation also eliminates Ground Loop and Noise problems.

The unit is powered from the RS-232 data line, therefore, no external power or RTS, DTR is required.

■ FEATURES

- Optical isolation protects RS-232 devices from Transient Surges, Ground Loop, and Lightning.
- Optical isolation eliminates Ground Loop and Noise problems.
- Plug and play (Hot-pluggable, Data format Auto-sensing & Self-adjusting).
- Port-powered, no external power or RTS, DTR required.
- SMT technology.
- Built-in Static protection circuit (ESD).

■ SPECIFICATIONS

Compatibility:	EIA/TIA RS-232C standard
Power Source:	Port power from RS-232 data line
Current Consumption:	Under 10mA
Optical Isolation:	2000V
Baud Rates:	300 to 38,400bps (Auto-sensing and Self-adjusting)
Distance:	RS-232: 5m (16ft)
Connector:	DB-9 Female Connector and DB-9 Male Connector
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	16 x 32 x 63 mm (0.63 x 1.3 x 2.5 in)
Weight:	23.5 g (0.83 oz)
Operating Temperature:	-20°C to 70°C (-4°F to 158°F)
Operating Humidity:	Up to 90% RH (no condensation)

■ PIN ASSIGNMENT

DB-9 Female Connector:

Pin:	1	4	6	7	8	2	3	5
Function/Internal Wiring:	Tied together			Tied together		TX	RX	GND

DB-9 Male Connector:

Pin:	1	4	6	7	8	2	3	5
Function/Internal Wiring:	Tied together			Tied together		RX	TX	GND

■ CONNECTIONS

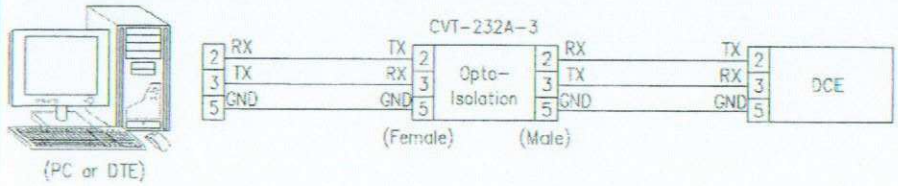


FIGURE 1: CVT-232A-3 CONNECTION DIAGRAM

■ DB-25 CONNECTIONS

CVT-232A-3 can also be used for DB-25 connectors, please refer to the DB-9 to DB-25 conversion table below:

DB-9 Pin Assignment:	1	2	3	4	5	6	7	8	9
DB-25 Pin Assignment:	8	3	2	20	7	6	4	5	22
Function:	DCD	RX	TX	DTR	GND	DSR	RTS	CTS	RI

■ TROUBLESHOOTING

- Measure pin TX and GND of the RS-232 device with a Volt meter, and be sure that the voltage is between -7V to -15V. Otherwise, please check the connection (e.g. for DCE devices, you need to swap pin TX and RX).
- Perform a Loopback test by using CommFront's 232Analyzer software: Connect TX to RX, then send commands from the 232Analyzer software. You should get an echo of the commands sent. By performing a simple Loopback test like this, you can test both the Transmitter and Receiver of your isolator. This is very helpful when you are in doubt about the performance of your isolator.

Revision 1.0 | The design and specifications are subject to change without notice for improvement | www.CommFront.com

RS-232 Isolated Repeater (Port-Powered / 3-Wire)

Model: RPT-232-3

CommFront
Communications made easy

INTRODUCTION

The RPT-232-3 is an Optically Isolated RS-232 data repeater (TX, RX and GND), which can be used to extend full-duplex RS-232 distance up to 3km (1.8 miles).

This product features opto-isolation circuits, which effectively protect your RS-232 devices from Transient Surges, Ground Loop, and Remote Lightning. The unit is powered from the RS-232 data line, therefore, no external power or RTS, DTR is required.

FEATURES

- Extend full-duplex RS-232 data over long distance (300bps -> 3km or 1.8 miles; 1.2kbps -> 2.4km or 1.5 miles; 9.6kbps -> 1.2km or 0.75 miles; 28.8kbps -> 500m or 1600 feet)
- Current loop circuit provides better noise immunization.
- Optical isolation protects RS-232 devices from Transient Surges, Ground Loop, and Lightning.
- Optical isolation eliminates Ground Loop and Noise problems.
- Plug and play (Hot-pluggable, Data format Auto-sensing & Self-adjusting).
- Port-powered, no external power or RTS, DTR required.
- SMT technology.
- Built-in Static protection circuit (ESD).

SPECIFICATIONS

Compatibility:	EIA/TIA RS-232C standard
Power Source:	Port power from RS-232 data line
Current Consumption:	Under 10mA
Optical Isolation:	2000V
Baud Rates:	300 to 28,800bps (Auto-sensing and Self-adjusting)
Distance:	RS-232: 5m (16 ft); Extended Distance: 3km (1.8 miles) for 300bps baud, 2.4km (1.5 miles) for 1.2kbps baud, 1.2km (0.75 miles) for 9.6kbps baud, and 500m (1600 ft) for 28.8kbps baud
Connector:	RS-232 Side: DB-9 Female; Terminal Block Side: DB-9 Male; Termination Board: DB-9 Female and a 4-Way Terminal Block
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	16 x 32 x 86 mm (0.63 x 1.3 x 3.4 in) (with Termination Board)
Weight:	34 g (1.2 oz) (with Termination Board)
Operating Temperature:	-20°C to 70°C (-4°F to 158°F)
Operating Humidity:	Up to 90% RH (no condensation)

PIN ASSIGNMENT

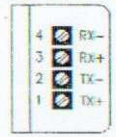
RS-232 Side (DB-9 Female Connector):

Pin:	1	4	6	7	8	2	3	5
Function/Internal Wiring:	Tied together			Tied together		TX	RX	GND

Terminal Block Side (DB-9 Male Connector / Terminal Block):

Pin:	1	2	3	4
Terminal Block:	TX+	TX-	RX+	RX-
Function:	Transmit Data		Receive Data	

Termination Board:



Numbers on the left indicate the pin assignment of DB-9 Male Connector.

CONNECTIONS

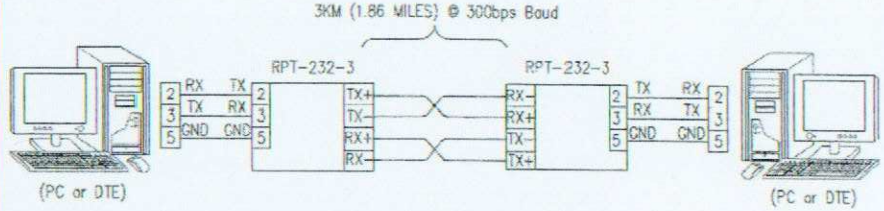


FIGURE 1: RPT-232-3 CONNECTION DIAGRAM

DB-25 CONNECTIONS

RPT-232-3 can also be used for DB-25 connectors, please refer to the DB-9 to DB-25 conversion table below:

DB-9 Pin Assignment:	1	2	3	4	5	6	7	8	9
DB-25 Pin Assignment:	8	3	2	20	7	6	4	5	22
Function:	DCD	RX	TX	DTR	GND	DSR	RTS	CTS	RI

TROUBLESHOOTING

- Measure pin TX and GND of the RS-232 device with a Volt meter, and be sure that the voltage is between -7V to -15V. Otherwise, please check the connection (e.g. for DCE devices, you need to swap pin TX and RX).
- Perform a Loopback test by using CommFront's 232Analyzer software: Connect TX+ to RX+ and TX- to RX-, then send commands from the 232Analyzer software. You should get an echo of the commands sent. By performing a simple Loopback test like this, you can test both the Transmitter and Receiver of your repeater. This is very helpful when you are in doubt about the performance of your repeater.

RS-485/TTL Converter

Model: TTL-485-2

CommFront
Communications made easy

INTRODUCTION

The TTL-485-2 is a RS-485 to TTL converter, which can be used to convert RS-485 to 5VDC TTL-compatible levels and vice versa. The unit is powered from an external 5VDC power supply. It supports data direction auto-turnaround, and therefore, no flow control is required.

FEATURES

- Plug and play (Hot-pluggable, Data format Auto-sensing & Self-adjusting).
- Data direction auto-turnaround, no flow control is required.
- SMT technology.
- Built-in Terminating Resistor (120Ω).
- Built-in Static protection circuit (ESD).
- Built-in Short Circuit protection (RS-485 and TTL data line).

SPECIFICATIONS

Compatibility:	EIA/TIA RS-485 standard and TTL level
Power Source:	+5VDC (±5%) Regulated Power Supply (not included)
Current Consumption:	Under 30mA
Baud Rates:	300 to 115,200bps (Auto-sensing & Self-adjusting)
Distance:	RS-485 side: Up to 1.2km (4000ft) at 19,200bps; TTL side: 3m (10ft)
Connectors:	TTL Side: DB-9 Male; RS-485 Side: DB-9 Male; Termination Board (TTL): DB-9 Female and a 3-way Terminal Block; Termination Board (RS-485): DB-9 Female and a 4-Way Terminal Block
Maximum number of drops:	128
End of Line Terminator:	120Ω (Built-in)
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	16 x 32 x 115 mm (0.63 x 1.3 x 4.5 in) (with Termination Boards)
Weight:	47 g (1.66 oz) (with Termination Boards)
Operating Temperature:	-10°C to 50°C (14°F to 122°F)
Operating Humidity:	Up to 90% RH (no condensation)

PIN ASSIGNMENT

TTL Side (DB-9 Male Connector / Terminal Block):

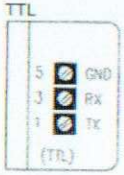
DB-9 Male Connector:	1	3	5
Terminal Block:	TX	RX	GND
Function:	TTL OUT	TTL IN	GND

RS-485 Side (DB-9 Male Connector / Terminal Block):

DB-9 Male Connector:	1	3	5	6,7	9
Terminal Block:	A+	B-	GND	Jumper (120)	+5V
Function:	RS485+	RS485-	GND	If shorted (Jumper ON - default), the 120Ω End of Line Terminator is ON	+5V

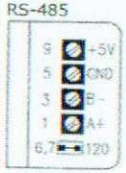
Termination Boards:

TTL



- Numbers on the left indicate the pin assignment of DB-9 Connectors (TTL side).
- TX is the TTL Output, RX is the TTL Input.

RS-485



- Numbers on the left indicate the pin assignment of DB-9 Connectors (RS-485 side).
- Connect an external +5VDC regulated power supply to +5V and GND.
- Turn ON the 120Ω End of Line Terminator only when the RS-485's distance is over 200m (660ft).

CONNECTIONS

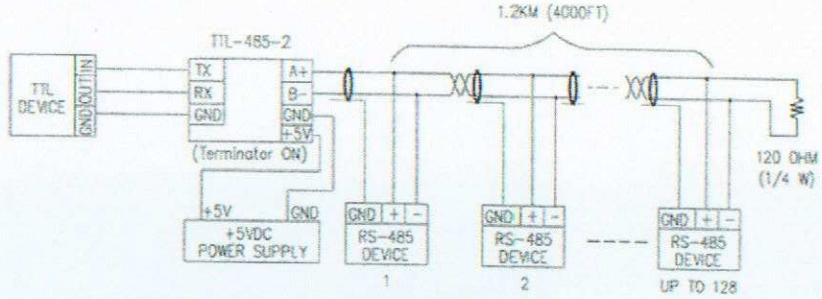


FIGURE 1: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-485)

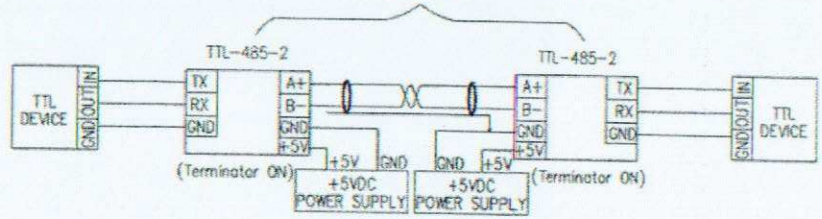


FIGURE 2: EXTENDING TTL DISTANCE

INSTALLATION NOTES

- Be sure that the DC power applied to pin +5V and GND is within the range of +4.75V to +5.25V (5V ±5%). Excessive input voltage or incorrect polarity connection could damage the converter.
- The 120Ω End of Line Terminator adds heavy DC loading to a system, connect it only when the RS-485's distance is over 200m (660ft).
- If TTL-485-2 is connected to any outdoor devices, please ensure that proper lightning protection is employed to prevent your devices from being damaged by lightning strikes.

TTL SIGNAL LEVELS

TTL Input	TTL Output
High (>2.0V)	High (>2.4V)
Low (<0.8V)	Low (<0.4V)

TROUBLESHOOTING

- Measure pin +5V and GND with a Volt meter, and be sure that it is within the range of +4.75V to +5.25V (5V ±5%). Excessive input voltage or incorrect polarity connection could damage the converter.
- Perform a Loopback test by using CommFront's 232Analyzer software: Connect TX (TTL Out) to RX (TTL In), and then send commands from the 232Analyzer software (Note: To communicate with the TTL-485-2 from a PC, a RS232/RS485 converter is required). You should get an echo of the commands sent. By performing a simple Loopback test like this, you can test both the Transmitter and Receiver of the RS-485/TTL converter. This is very helpful when you are in doubt about the performance of your converter.

RS-232/RS-485/RS-422 Isolated Converter

Model: CVT-485_422-3

CommFront
Communications made easy

INTRODUCTION

The CVT-485_422-3 is an Optically Isolated RS-232 to RS-485 / RS-232 to RS-422 converter, which can be used to convert any standard RS-232C port into a two-wire half-duplex RS-485 port, or a four-wire full-duplex RS-422 port and vice versa.

This product features opto-isolation circuits, which effectively protect your RS-232 devices from Transient Surges, Ground Loop, and Remote Lightning. The unit is powered from the RS-232 data line; it also supports data direction auto-turnaround. Therefore, no external power or flow control is required.

FEATURES

- Optical isolation protects RS-232 devices from Transient Surges, Ground Loop, and Lightning.
- Optical isolation eliminates Ground Loop and Noise problems.
- Plug and play (Hot-pluggable, Data format Auto-sensing & Self-adjusting).
- Port-powered, no external power or RTS, DTR required.
- Data direction auto-turnaround, no flow control is required.
- SMT technology.
- Built-in Terminating Resistor (120Ω).
- Built-in Static protection circuit (ESD).
- Built-in Short circuit protection (RS-485/RS-422 data line).

SPECIFICATIONS

Compatibility:	EIA/TIA RS-232C standard and RS-485/RS-422 standard
Power Source:	Port power from RS-232 data line
Current Consumption:	Under 10mA
Optical Isolation:	2000V
Baud Rates:	300 to 38,400bps (Auto-sensing and Self-adjusting)
Distance:	RS-232: 5m (16ft); RS-485 side: Depending on power from RS-232 port, will transmit up to 1.2km (4000ft) at 19,200bps
Connector:	RS-232 Side: DB-9 Female; RS-485/RS-422 Side: DB-9 Male; Termination Board: DB-9 Female and a 6-Way Terminal Block
Maximum number of drops:	64
End of Line Terminator:	120Ω (Built-in)
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	16 x 32 x 90 mm (0.63 x 1.3 x 3.5 in) (with Termination Board)
Weight:	38 g (1.34 oz) (with Termination Board)
Operating Temperature:	-20°C to 70°C (-4°F to 158°F)
Operating Humidity:	Up to 90% RH (no condensation)

PIN ASSIGNMENT

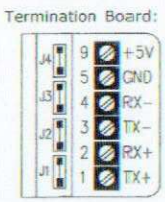
RS-232 Side (DB-9 Female Connector):

Pin:	1	4	6	7	8	2	3	5
Function/Internal Wiring:	Tied together			Tied together		TX	RX	GND

RS-485/RS-422 Side (DB-9 Male Connector / Termination Board):

Pin:	1	2	3	4	5	6	7	8	4
Jumper:	J2 (default: ON)		J3 (default: ON)			J1 (default: ON)		J4 (default: ON)	
RS-485:	A+ (J2 ON)		B- (J3 ON)		GND	(J1 ON)		J4 ON to turn ON 120Ω End of Line Terminator	
RS-422:	(J2 OFF)		(J3 OFF)		GND	(J1 OFF)			
	TX+	RX+	TX-	RX-					

Termination Board:



- Numbers on the left indicate the pin assignment of DB-9 Male Connector (RS-485/RS-422 side).
- DO NOT connect external power to +5V pin, it is for measurement only. The unit will function correctly only when the voltage on +5V pin is around +5V (when RS-232 port is connected). Otherwise, please check the connection.
- The unit comes with a built-in 120Ω End of Line Terminator; use it (Jumper J4 ON) only when the distance is over 200m (660ft).

CONNECTIONS

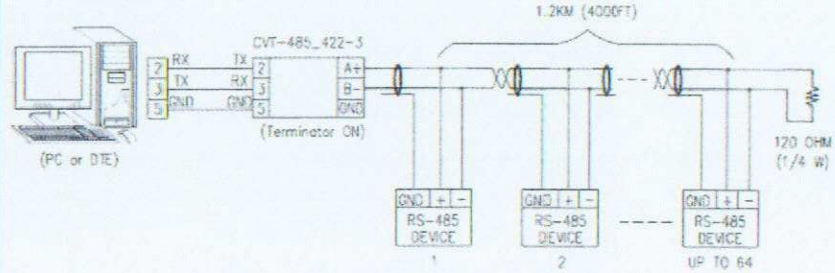


FIGURE 1: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-485)

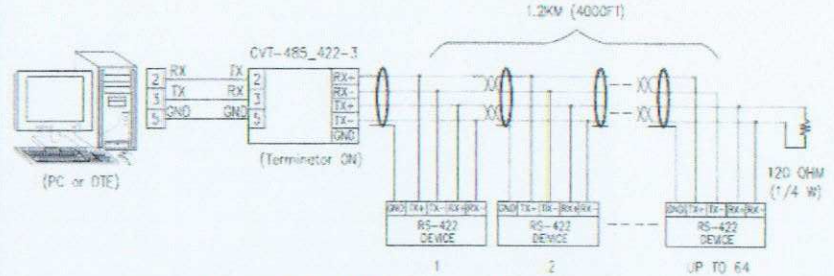


FIGURE 2: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-422)

INSTALLATION NOTES

- Connect PC's (or other DTE device's) COM port (or use a straight-through cable) to the RS-232 side of CVT-485_422-3, use a cross-over (Null-Modem) Cable for DCE device.
- The 120Ω End of Line Terminator adds heavy DC loading to a system, connect it only when the RS-485/RS-422's distance is over 200m (660ft).

TROUBLESHOOTING

- Measure pin +5V and GND with a Volt meter, and be sure that it is around +5VDC (when RS-232 port is connected). Otherwise, please check the connection.
- Perform a Loopback test by using CommFront's 232Analyzer software: Connect TX+ to RX+, TX- to RX-, then send commands from the 232Analyzer software. You should get an echo of the commands sent. By performing a simple Loopback test like this, you can test both the Transmitter and Receiver of the converter. This is very helpful when you are in doubt about the performance of your converter.

Revision 1.0 | The design and specifications are subject to change without notice for improvement | www.CommFront.com

RS-232/RS-485/RS-422 Isolated Converter

Model: CVT-485_422-3

CommFront
Communications made easy

INTRODUCTION

The CVT-485_422-3 is an Optically Isolated RS-232 to RS-485 / RS-232 to RS-422 converter, which can be used to convert any standard RS-232C port into a two-wire half-duplex RS-485 port, or a four-wire full-duplex RS-422 port and vice versa.

This product features opto-isolation circuits, which effectively protect your RS-232 devices from Transient Surges, Ground Loop, and Remote Lightning. The unit is powered from the RS-232 data line; it also supports data direction auto-turnaround. Therefore, no external power or flow control is required.

FEATURES

- Optical isolation protects RS-232 devices from Transient Surges, Ground Loop, and Lightning.
- Optical isolation eliminates Ground Loop and Noise problems.
- Plug and play (Hot-pluggable, Data format Auto-sensing & Self-adjusting).
- Port-powered, no external power or RTS, DTR required.
- Data direction auto-turnaround, no flow control is required.
- SMT technology.
- Built-in Terminating Resistor (120Ω).
- Built-in Static protection circuit (ESD).
- Built-in Short circuit protection (RS-485/RS-422 data line).

SPECIFICATIONS

Compatibility:	EIA/TIA RS-232C standard and RS-485/RS-422 standard
Power Source:	Port power from RS-232 data line
Current Consumption:	Under 10mA
Optical Isolation:	2000V
Baud Rates:	300 to 38,400bps (Auto-sensing and Self-adjusting)
Distance:	RS-232: 5m (16ft); RS-485 side: Depending on power from RS-232 port, will transmit up to 1.2km (4000ft) at 19,200bps
Connector:	RS-232 Side: DB-9 Female; RS-485/RS-422 Side: DB-9 Male; Termination Board: DB-9 Female and a 6-Way Terminal Block
Maximum number of drops:	64
End of Line Terminator:	120Ω (Built-in)
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	16 x 32 x 90 mm (0.63 x 1.3 x 3.5 in) (with Termination Board)
Weight:	38 g (1.34 oz) (with Termination Board)
Operating Temperature:	-20°C to 70°C (-4°F to 158°F)
Operating Humidity:	Up to 90% RH (no condensation)

PIN ASSIGNMENT

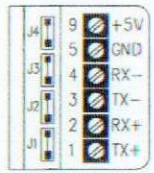
RS-232 Side (DB-9 Female Connector):

Pin:	1	4	6	7	8	2	3	5
Function/Internal Wiring:	Tied together			Tied together		TX	RX	GND

RS-485/RS-422 Side (DB-9 Male Connector / Termination Board):

Pin:	1	2	3	4	5	6	7	8	4
Jumper:	J2 (default: ON)		J3 (default: ON)			J1 (default: ON)		J4 (default: ON)	
RS-485:	A+ (J2 ON)		B- (J3 ON)		GND	(J1 ON)		J4 ON to turn ON 120Ω End of Line Terminator	
RS-422:	(J2 OFF)		(J3 OFF)		GND	(J1 OFF)			
	TX+	RX+	TX-	RX-					

Termination Board:



- Numbers on the left indicate the pin assignment of DB-9 Male Connector (RS-485/RS-422 side).
- DO NOT connect external power to +5V pin, it is for measurement only. The unit will function correctly only when the voltage on +5V pin is around +5V (when RS-232 port is connected). Otherwise, please check the connection.
- The unit comes with a built-in 120Ω End of Line Terminator; use it (Jumper J4 ON) only when the distance is over 200m (660ft).

CONNECTIONS

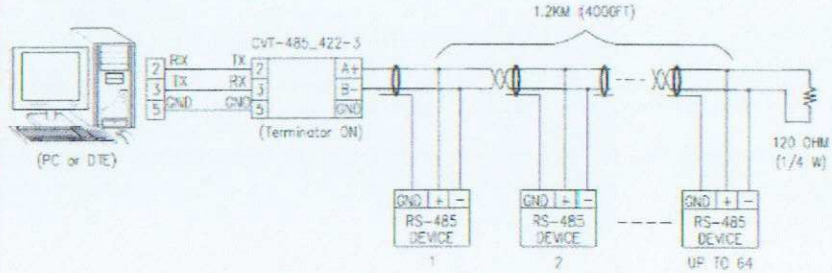


FIGURE 1: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-485)

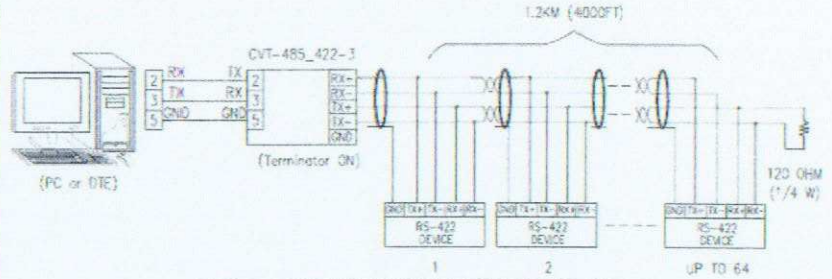


FIGURE 2: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-422)

INSTALLATION NOTES

- Connect PC's (or other DTE device's) COM port (or use a straight-through cable) to the RS-232 side of CVT-485_422-3, use a cross-over (Null-Modem) Cable for DCE device.
- The 120Ω End of Line Terminator adds heavy DC loading to a system, connect it only when the RS-485/RS-422's distance is over 200m (660ft).

TROUBLESHOOTING

- Measure pin +5V and GND with a Volt meter, and be sure that it is around +5VDC (when RS-232 port is connected). Otherwise, please check the connection.
- Perform a Loopback test by using CommFront's 232Analyzer software: Connect TX+ to RX+, TX- to RX-, then send commands from the 232Analyzer software. You should get an echo of the commands sent. By performing a simple Loopback test like this, you can test both the Transmitter and Receiver of the converter. This is very helpful when you are in doubt about the performance of your converter.

RS-232 Isolator (Port-Powered / 7-Wire)

Model: CVT-232B-3

CommFront
Communications made easy

INTRODUCTION

The CVT-232B-3 optically isolates seven (7) RS-232 lines (TX, RX, RTS, CTS, DTR, DSR and GND), which effectively protects your RS-232 devices from Transient Surges, Ground Loop, and Remote Lightning. Optical isolation also eliminates Ground Loop and Noise problems.

The unit is powered from the RS-232 data line, therefore, no external power or RTS, DTR is required.

FEATURES

- Optical isolation protects RS-232 devices from Transient Surges, Ground Loop, and Lightning.
- Optical isolation eliminates Ground Loop and Noise problems.
- Plug and play (Hot-pluggable, Data format Auto-sensing & Self-adjusting).
- Port-powered, no external power or RTS, DTR required.
- SMT technology.
- Built-in Static protection circuit (ESD).

SPECIFICATIONS

Compatibility:	EIA/TIA RS-232C standard
Power Source:	Port power from RS-232 data line
Current Consumption:	Under 10mA
Optical Isolation:	2000V
Baud Rates:	300 to 19,200bps (Auto-sensing and Self-adjusting)
Distance:	RS-232: 5m (16ft)
Connector:	DB-9 Female Connector and DB-9 Male Connector
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	16 x 32 x 63 mm (0.63 x 1.3 x 2.5 in)
Weight:	25 g (0.88 oz)
Operating Temperature:	-20°C to 70°C (-4°F to 158°F)
Operating Humidity:	Up to 90% RH (no condensation)

CONNECTIONS

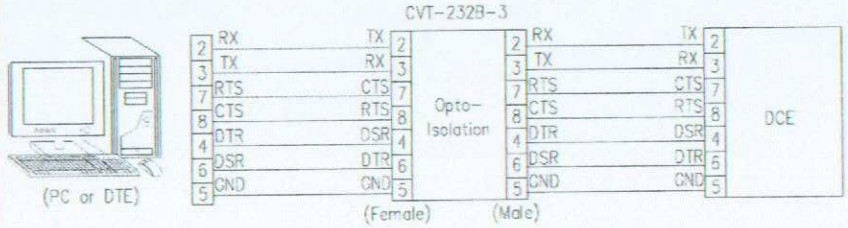


FIGURE 1: CVT-232B-3 CONNECTION DIAGRAM

DB-25 CONNECTIONS

CVT-232B-3 can also be used for DB-25 connectors, please refer to the DB-9 to DB-25 conversion table below:

DB-9 Pin Assignment:	1	2	3	4	5	6	7	8	9
DB-25 Pin Assignment:	8	3	2	20	7	6	4	5	22
Function:	DCD	RX	TX	DTR	GND	DSR	RTS	CTS	RI

TROUBLESHOOTING

- Measure pin TX and GND of the RS-232 device with a Volt meter, and be sure that the voltage is between -7V to -15V. Otherwise, please check the connection (e.g. for DCE devices, you need to swap pin TX and RX).
- Perform a Loopback test by using CommFront's 232Analyzer software: Connect TX to RX, then send commands from the 232Analyzer software. You should get an echo of the commands sent. By performing a simple Loopback test like this, you can test both the Transmitter and Receiver of your isolator. This is very helpful when you are in doubt about the performance of your isolator.

RS-232 Isolator (Port-Powered / 7-Wire)

Model: CVT-232B-3

CommFront
Communications made easy

INTRODUCTION

The CVT-232B-3 optically isolates seven (7) RS-232 lines (TX, RX, RTS, CTS, DTR, DSR and GND), which effectively protects your RS-232 devices from Transient Surges, Ground Loop, and Remote Lightning. Optical isolation also eliminates Ground Loop and Noise problems.

The unit is powered from the RS-232 data line, therefore, no external power or RTS, DTR is required.

FEATURES

- Optical isolation protects RS-232 devices from Transient Surges, Ground Loop, and Lightning.
- Optical isolation eliminates Ground Loop and Noise problems.
- Plug and play (Hot-pluggable, Data format Auto-sensing & Self-adjusting).
- Port-powered, no external power or RTS, DTR required.
- SMT technology.
- Built-in Static protection circuit (ESD).

SPECIFICATIONS

Compatibility:	EIA/TIA RS-232C standard
Power Source:	Port power from RS-232 data line
Current Consumption:	Under 10mA
Optical Isolation:	2000V
Baud Rates:	300 to 19,200bps (Auto-sensing and Self-adjusting)
Distance:	RS-232: 5m (16ft)
Connector:	DB-9 Female Connector and DB-9 Male Connector
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	16 x 32 x 63 mm (0.63 x 1.3 x 2.5 in)
Weight:	25 g (0.88 oz)
Operating Temperature:	-20°C to 70°C (-4°F to 158°F)
Operating Humidity:	Up to 90% RH (no condensation)

CONNECTIONS

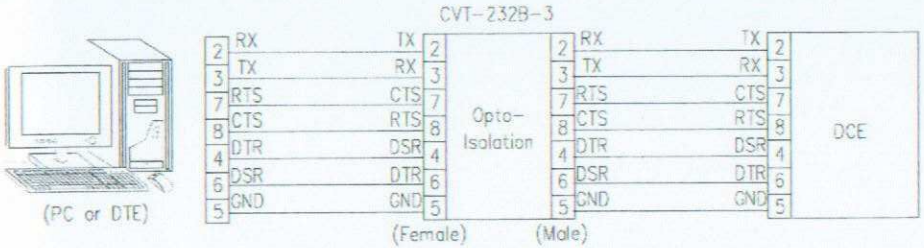


FIGURE 1: CVT-232B-3 CONNECTION DIAGRAM

DB-25 CONNECTIONS

CVT-232B-3 can also be used for DB-25 connectors, please refer to the DB-9 to DB-25 conversion table below:

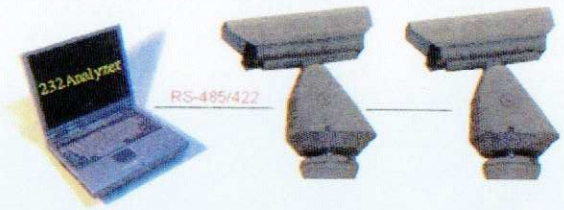
DB-9 Pin Assignment:	1	2	3	4	5	6	7	8	9
DB-25 Pin Assignment:	8	3	2	20	7	6	4	5	22
Function:	DCD	RX	TX	DTR	GND	DSR	RTS	CTS	RI

TROUBLESHOOTING

- Measure pin TX and GND of the RS-232 device with a Volt meter, and be sure that the voltage is between -7V to -15V. Otherwise, please check the connection (e.g. for DCE devices, you need to swap pin TX and RX).
- Perform a Loopback test by using CommFront's 232Analyzer software: Connect TX to RX, then send commands from the 232Analyzer software. You should get an echo of the commands sent. By performing a simple Loopback test like this, you can test both the Transmitter and Receiver of your isolator. This is very helpful when you are in doubt about the performance of your isolator.

Tech Note:
Pelco P Protocol Tutorial and Examples

CommFront
Communications made easy



Besides Pelco-D, Pelco-P is another PTZ camera control protocol from Pelco Inc.
(Note: Pelco-P protocol has been depreciated since a few years ago).

This page will explain the following topics in details:
1) The format of Pelco-P
2) How to calculate the checksum byte by using 232Analyzer
3) Pelco-P command string examples
4) How to use 232Analyzer to control the Pelco-P cameras
5) Have fun playing with 232Analyzer and Pelco-P cameras

After reading this page and testing the camera with the 232Analyzer software, you should be able to understand the ease of using the Pelco-P protocol, and control any Pelco-P cameras in five minutes' time.

Notes:
1) Before you can control any Pelco-P cameras, you need to prepare the following items:
- A PC running 232Analyzer program
- A RS-232 port (or USB/RS-232 converter)
- A RS-232/RS-485 converter

2) Make sure your COM port settings in the 232Analyzer program matches with camera's settings (Pelco-P cameras use No parity, 8 Data bits and 1 Stop bit, baud rate depends on your camera setting)

(Click here to download the 232Analyzer FREE Version. Click here to download Pelco-D/P device profiles)

1) The format of Pelco-P

Pelco-P consists of 8 hexadecimal bytes (all byte data used in this page are in Hexadecimal format unless otherwise noted)

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
STX	Camera Address	Data 1	Data 2	Data 3	Data 4	ETX	Checksum

Byte 1 (STX) - Start of Text, fixed to A0
Byte 2 (Camera Address) - logical address of the camera being controlled (Address 1 is 00)
Byte 3 & 6 (Data 1 to 4) - shown below
Byte 7 (ETX) - End of Text, fixed to AF
Byte 8 (Checksum) - xOR sum of Bytes 1 to 7

Data 1 to 4 details

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Data 1	Fixed to 0	Camera On	Auto Scan On	Camera On/Off	Iris Close	Iris Open	Focus Near	Focus Far
Data 2	Fixed to 0	Zoom Wide	Zoom Tele	Tilt Down	Tilt Up	Pan Left	Pan Right	0 (for pan/tilt)
Data 3	Pan speed 00 (stop) to 3F (high speed) and 40 for Turbo							
Data 4	Tilt speed 00 (stop) to 3F (high speed)							

Example (Data 2):
Pan Left - 0 0 0 0 0 1 0 0, which equals to 04 (both hexadecimal and decimal)
Some other commands

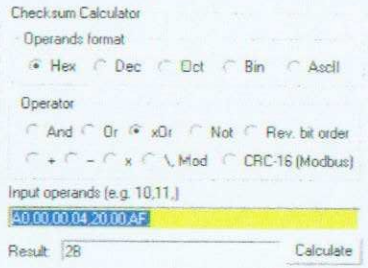
Command	Byte 3	Byte 4	Byte 5	Byte 6
Go to Preset	00	07	00	01 to FF
Set Lens Speed	00	25	00	00 to 33
Alarm Ack.	00	19	00	Alarm no.

2) How to calculate the checksum byte by using 232Analyzer

Suppose you are controlling camera 1 (address 1) to pan left at normal speed, the command string of the first 6 bytes would be: A0 00 00 04 20 00 AF

Go to "Checksum Calculator" pane, choose "Hex" as "Operands format" and "xOr" as Operator. Then key in all the bytes in the "Input operands" box. Remember to add "," after each byte of data. You will then get the result of "2B", which is the checksum byte.

Now the full string of pan left at normal speed command would be A0 00 00 04 20 00 AF 2B



3) Pelco-P command string examples

Camera Address: 1
Pan Left at normal speed: A0 00 00 04 20 00 AF 2B
Pan Right at normal speed: A0 00 00 02 20 00 AF 2D
Tilt Up at normal speed: A0 00 00 08 00 20 AF 27
Tilt Down at normal speed: A0 00 00 10 00 20 AF 3F
Stop all actions (Pan/Tilt/Zoom/Iris etc.): A0 00 00 00 00 00 AF 0F
Note: the controlled cameras will respond by sending back Acknowledgement data

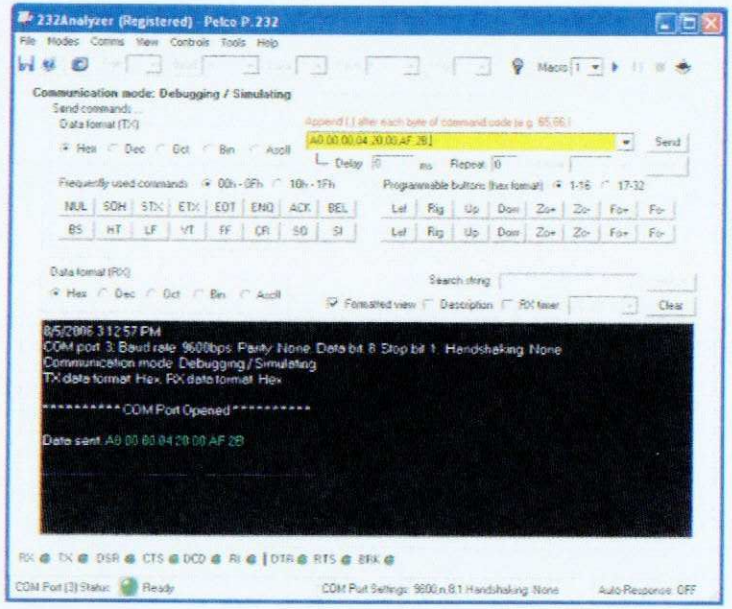
4) How to use 232Analyzer to control the Pelco-P cameras

Note: Make sure your COM port settings match the settings of the cameras.

Suppose you are controlling camera address no. 1 to pan left at medium speed (command string: A0 00 00 04 20 00 AF 2B)

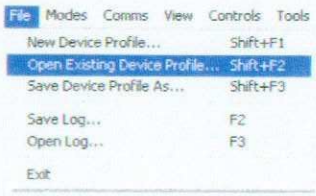
Way 1: From the command pane - choose "Hex" as the TX data format and key in the command string "A0,00,00,04,20,00,AF,2B," in the input box as shown below and then click on "Send" button. The command will then be sent out immediately and you will notice the camera panning left continuously.

Note: If you are using the FREE Version, choose "Dec" as TX data format and key in "160,0,0,4,32,0,175,43,"



Way 2: From Programmable buttons

Download and unzip the Pelco-DP.zip file, then open "Pelco-P.232" file from 232Analyzer program. When you click on the first button "Lef", the command will be sent out after 500ms



5) Have fun playing with 232Analyzer and Pelco-P cameras

The programmable buttons 1 to 8 will trigger the camera's action continuously. To stop, you have to send out the "Stop" command "A0 00 00 00 00 00 AF 0F" (or "160 000 000 004 032 000 175 043" in Decimal format) to the camera.

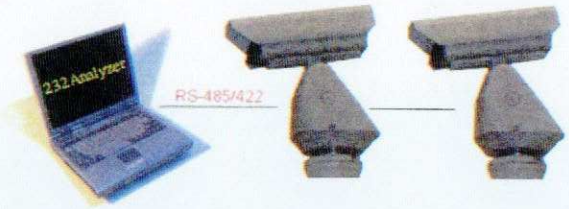
"Pelco-P.232" file allows you to send two (2) commands with the click of a button, e.g. when you click on "Lef" button on the second row (button no. 9), the camera will pan left for 500ms and then stop. This is because button no. 9 is linked to button 17, which stores the "Stop" command. (Note: Programmable buttons 9 to 16 will trigger the camera's action for 500ms and will stop automatically).

You may program it in such a way that the camera pans left for 500ms, stops, tilts up for 1000ms, stops, tilts down for 500ms, and then pans right continuously. All sorts of actions can be done through "Programmable Buttons" or "Macros" functions.

Have fun!

Tech Note:
Pelco D Protocol Tutorial and Examples

CommFront
Communications made easy



Pelco-D is the popular PTZ camera control protocol used in the CCTV industry (Click here to visit Pelco's website).

This page will explain the following topics in details:

1) The format of Pelco-D
2) How to calculate the checksum byte by using 232Analyzer
3) Pelco-D command string examples
4) How to use 232Analyzer to control the Pelco-D cameras
5) Have fun playing with 232Analyzer and Pelco-D cameras

After reading this page and testing the camera with the 232Analyzer software , you should be able to understand the ease of using the Pelco-D protocol, and control any Pelco-D cameras in five minutes' time.

Notes:

1) Before you can control any Pelco-D cameras, you need to prepare the following items:
   - A PC running 232Analyzer program
   - A RS-232 port (or USB/RS-232 converter)
   - A RS-232/RS-485 converter
2) Make sure your COM port settings in the 232Analyzer program matches with camera's settings (Pelco-D cameras use No parity, 8 Data bits and 1 Stop bit, baud rate depends on your camera setting)

(Click here to download the 232Analyzer FREE Version. Click here to download Pelco-D/P device profiles)

1) The format of Pelco-D

Pelco-D consists of 7 hexadecimal bytes (all byte data used in this page are in Hexadecimal format unless otherwise noted)

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Sync	Camera Address	Command 1	Command 2	Data 1	Data 2	Checksum

Byte 1 (Sync) - the synchronization byte, fixed to FF

Byte 2 (Camera Address) - logical address of the camera being controlled (Address 1 is 01)

Byte 3 & 4 (Command 1 and 2) are shown below

Byte 5 (Data 1) - pan speed, range from 00 (stop) to 3F (high speed) and FF for "turbo"

speed (the maximum pan speed that the device can go)

Byte 6 (Data 2) - tilt speed, range from 00 (stop) to 3F (maximum speed)

Byte 7 (Checksum) - sum of bytes (excluding the synchronization byte), then modulo 100 (Decimal code: 256)

Command 1 and 2 details

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Command 1	Sense	Reserved	Reserved	Auto / Manual Scan	Camera On/Off	Iris Close	Iris Open	Focus Near
Command 2	Focus Far	Zoom Wide	Zoom Tele	Tilt Down	Tilt Up	Pan Left	Pan Right	Fixed to 0

Example (Command 2):
Pan Left - 0 0 0 0 0 1 0 0, which equals to 04 (both hexadecimal and decimal)

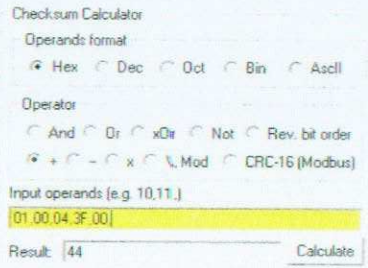
Some other commands

Command	Byte 3	Byte 4	Byte 5	Byte 6
Go to Preset	00	07	00	01 to FF
Set Zoom Speed	00	25	00	00 to 33
Set Focus Speed	00	27	00	00 to 33
Alarm Ack.	00	19	00	Alarm no.

2) How to calculate the checksum byte by using 232Analyzer

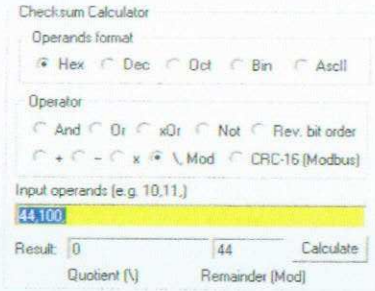
Suppose you are controlling camera 1 (address 1) to pan left at high speed, the command string of the first 6 bytes would be: FF 01 00 04 3F 00

Step 1: Go to "Checksum Calculator" pane, choose "Hex" as "Operands format" and "+" as Operator. Then take out the first byte FF and key in all other bytes in the "Input operands" box. Remember to add "," after each byte of data. You will then get the result of "44"



Step 2: Change Operator to "\,Mod", and key in the previous result ("44") and modulo parameter "100" in the "Input operands" box, remember to add "," after each byte of data. You will then get the result of "44" in "Remainder (Mod)" box.

"44" would be the result of checksum, now the full string of pan left at high speed command would be FF 01 00 04 3F 00 44



3) Pelco-D command string examples

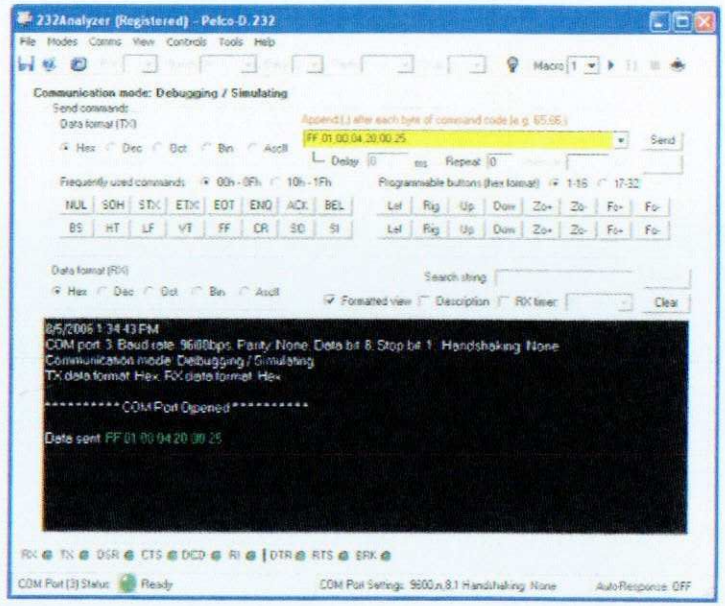
Camera Address: 1
Pan Left at high speed: FF 01 00 04 3F 00 44
Pan Right at medium speed: FF 01 00 02 20 00 23
Tilt Up at high speed: FF 01 00 08 3F 00 48
Tilt Down at medium speed: FF 01 00 10 20 00 31
Stop all actions (Pan/Tilt/Zoom/Iris etc.): FF 01 00 00 00 00 01
Note: there will be no response from cameras in Pelco-D protocol

4) How to use 232Analyzer to control the Pelco-D cameras

Suppose you are controlling camera address no. 1 to pan left at medium speed (command string: FF 01 00 04 20 00 25)

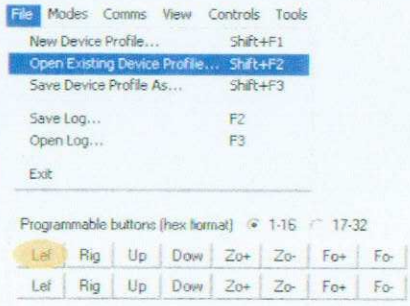
Way 1: From the command pane - choose "Hex" as the TX data format and key in the command string "FF,01,00,04,20,00,25," in the input box as shown below. Then click on the "Send" button. The command will then be sent out immediately and you will notice the camera panning left continuously.

Note: If you are using the FREE Version, choose "Dec" as TX data format and key in "255,1,0,4,32,0,37,"



Way 2: From Programmable buttons

Download and unzip the Pelco-DP.zip file, then open "Pelco-D.232" file from 232Analyzer program. When you click on the first button "Lef", the command will be sent out after 500ms



5) Have fun playing with 232Analyzer and Pelco-D cameras

The programmable buttons 1 to 8 will trigger the camera's action continuously. To stop, you have to send out the "Stop" command "FF 01 00 00 00 00 01" (or "255 01 00 00 00 00 01" Decimal format) to the camera.

"Pelco-D.232" file allows you to send two (2) commands with the click of a button, e.g. when you click on "Lef" button on the second row (button no. 9), the camera will pan left for 500ms and then stop. This is because button no. 9 is linked to button 17, which stores

the "Stop" command. (Note: Programmable buttons 9 to 16 will trigger the camera's action for 500ms and will stop automatically).

You may program it in such a way that the camera pans left for 500ms, stops, tilts up for 1000ms, stops, tilts down for 500ms, and then pans right continuously. All sorts of actions can be done through "Programmable Buttons" or "Macros" functions.

Have fun!

Step 1: Understand RS-232 Connections and Signals

RS-232C, EIA RS-232, or simply RS-232, refers to the same standard defined by the Electronic Industries Association in 1969 for serial communication.

DTE and DCE

DTE stands for Data Terminal Equipment. A computer is a DTE. DCE stands for Data Communication Equipment. A modem is a DCE.

DTE normally comes with a Male Connector, while DCE comes with a Female Connector. However, that is not always true. Use the simple way below to confirm:

Measure Pin 3 and Pin 5 of a DB-9 Connector with a Volt Meter, if you get a voltage of -3V to -15V, then it is a DTE device. If the voltage is on Pin 2, then it is a DCE device. Note: The result for a DB-25 Connector is reversed (Please refer to DB-9 to DB-25 conversion table below).

RS-232 Pinouts (DB-9)

A male DB-9 connector viewed from the front. Reverse or back view of male connector for Female Connector.

DTE Pin Assignment (DB-9)			DCE Pin Assignment (DB-9)		
1	DCD	Data Carrier Detect	1	DCD	Data Carrier Detect
2	RxD	Receive Data	2	TxD	Transmit Data
3	TxD	Transmit Data	3	RxD	Receive Data
4	DTR	Data Terminal Ready	4	DSR	Data Set Ready
5	GND	Ground (Signal)	5	GND	Ground (Signal)
6	DSR	Data Set Ready	6	DTR	Data Terminal Ready
7	RTS	Request to Send	7	CTS	Clear to Send
8	CTS	Clear to Send	8	RTS	Request to Send
9	RI	Ring Indicator	9	RI	Ring Indicator

DB-9 to DB-25 Conversion

DB-9	DB-25	Function	
1	8	DCD	Data Carrier Detect
2	3	RxD	Receive Data
3	2	TxD	Transmit Data
4	20	DTR	Data Terminal Ready
5	7	GND	Ground (Signal)
6	6	DSR	Data Set Ready
7	4	RTS	Request to Send
8	5	CTS	Clear to Send
9	22	RI	Ring Indicator

RS-232 Connections

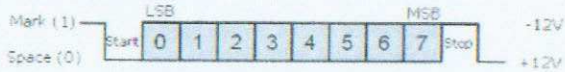
A straight-through cable is used to connect a DTE (e.g. computer) to a DCE (e.g. modem), all signals in one side connected to the corresponding signals in the other side in a one-to-one basis.

A crossover (null-modem) cable is used to connect two DTE directly, without a modem in between. They cross transmit and receive data signals between the two sides and there are many variations on how the other control signals are wired, below is one of them:

Straight-through (DB-9)					Crossover (Null-Modem) (DB-9)				
(DTE)			(DCE)		(DTE)			(DTE)	
1	DCD	-------	DCD	1	1	DCD		DCD	1
2	RxD	-------	TxD	2	2	RxD	-------	TxD	3
3	TxD	-------	RxD	3	3	TxD	-------	RxD	2
4	DTR	-------	DSR	4	4	DTR	-------	DSR	6
5	GND	-------	GND	5	5	GND	-------	GND	5
6	DSR	-------	DTR	6	6	DSR	-------	DTR	4
7	RTS	-------	CTS	7	7	RTS	-------	CTS	8
8	CTS	-------	RTS	8	8	CTS	-------	RTS	7
9	RI	-------	RI	9	9	RI		RI	9

Null-Modem (Model: CVT-Null-1)

RS-232 Signals



RS-232 Logic Waveform (8N1)

The graphic above illustrates a typical RS-232 logic waveform (Data format: 1 Start bit, 8 Data bits, No Parity, 1 Stop bit). The data transmission starts with a Start bit, followed by the data bits (LSB sent first and MSB sent last), and ends with a "Stop" bit.

The voltage of Logic "1" (Mark) is between -3VDC to -15VDC, while the Logic "0" (Space) is between +3VDC to +15VDC.

RS-232 connects the Ground of 2 different devices together, which is the so-called "Unbalanced" connection. An unbalanced connection is more susceptible to noise, and has a distance limitation of 50 ft (which is around 15 meters).

Step 2: Understand RS-232 Connections & Signals

A protocol is one or a few sets of hardware and software rules agreed to by all communication parties for exchanging data correctly and efficiently.

Synchronous and Asynchronous Communications

Synchronous Communication requires the sender and receiver to share the same clock. The sender provides a timing signal to the receiver so that the receiver knows when to "read" the data. Synchronous Communication generally has higher data rates and greater error-checking capability. A printer is a form of Synchronous Communication.

Asynchronous Communication has no timing signal or clock. Instead, it inserts Start/Stop bits into each byte of data to "synchronize" the communication. As it uses less wires for communication (no clock signals), Asynchronous Communication is simpler and more cost-effective. RS-232/RS-485/RS-422/TTL are the forms of Asynchronous

Apr 15, 2007 | Tech Note: 3 Easy Steps to Understand and Control your RS232 Devices | www.CommFront.com

Communications.

Drilling Down: Bits and Bytes

Internal computer communications consists of digital electronics, represented by only two conditions: ON or OFF. We represent these with two numbers: 0 and 1, which in the binary system is termed a Bit.

A Byte consists of 8 bits, which represents decimal number 0 to 255, or Hexadecimal number 0 to FF. As described above, a byte is the basic unit of Asynchronous communications.

Baud rate, Data bits, Parity, and Stop bit

RS-232 Logic Waveform (8N1)

The baud rate is the communication speed that measures the number of bit transfers per second. For example, 19200 baud is 19200 bits per second.

Data bits are a measurement of the actual data bits in a communication packet. For example, the above graphic shows eight (8) data bits in a communication packet. A communication packet refers to a single byte transfer, including Start/Stop bits, Data bits and Parity. If you are transferring a standard ASCII code (0 to 127), 7 data bits are enough. If it is an extended ASCII code (128 to 255), then 8 data bits are required.

Parity is a simple way to error-check. There are Even, Odd, Mark and Space indicators. You can also use no parity. For Even and Odd parity, the serial port sets the parity bit (the last bit after the data bit) to a value to ensure that the data packet has an Even or Odd number of logic-high bits. For example, if the data is 10010010, for Even parity, the serial port sets the parity bit as 1 to keep the number of logic-high bits Even. For Odd parity, the parity bit is 0 so that the number of logic-high bits is Odd. Mark parity simply sets the parity bit to logic-high and Space sets the parity bit to logic-low, so that the receiving party can determine if the data is corrupted.

Stop bits are used to signal the end of a communication packet. This also helps to synchronize different clocks on the serial devices.

Handshaking (Flow Control)

Handshaking is also called "Flow Control". The main purpose of Handshaking is to prevent receiver overloading. By using Handshaking signals, receivers will be able to tell the sending device to pause data transmission if the receiver is overloaded. There are three types of handshaking: Software handshaking, Hardware handshaking and Both.

Software handshaking uses two control characters: XON and XOFF. The receiver sends these control characters to pause transmitter during communication. XON is decimal 17 and XOFF is decimal 19 in the ASCII chart. The drawback of Software handshaking is that these two control characters can not be used in data. This is quite important when you are transmitting Binary data as you might need to use these two codes in your data.

Hardware handshaking makes use of actual hardware lines, such as RTS/CTS, DTR/DSR,

and DCD/RI (for modem).

In DTE/DCE communication, RTS (Request to Send) is an output on the DTE and input on the DCE. CTS (Clear to Send) is the answering signal coming from the DCE. Before sending a data, the DTE asks permission by setting its RTS output to high. No data will be sent until the DCE grants permission by using the CTS line.

The DTE uses the DTR (Data Terminal Ready) signal to indicate it is ready to accept information, whereas the DCE uses the DSR signal for the same purpose. DTR/DSR are normally ON or OFF for the whole connection session (e.g. Off-hook), while RTS/CTS are ON or OFF for each data transmission.

DCD (Data Carrier Ready) is used by the modem when a connection has been established with remote equipment, while RI (Ring Indicator) is used by the modem to indicate a ring signal from telephone line

Data formats (Binary, Hex, Dec, Oct, and ASCII)

Serial devices use Binary for communication, which consists of just two unique numbers: 0 and 1. Binary is the Base-2 numbering system. One byte of data consists of 8 binary digits, from 0000 0000 to 1111 1111.

Hexadecimal is the base-16 system, which consists of 16 numbers: 0 to 9 and the letters A to F (decimal number 15). The Hexadecimal numbering system is useful because it can represent every byte as two consecutive hexadecimal digits, and it is easier for humans to read Hexadecimal numbers than Binary numbers. Most of the manufacturers use Hexadecimal in their protocol documentation. It is simple to convert a value from Hexadecimal to Binary. Just translate each Hexadecimal digit into its 4-bit binary equivalent. E.g. Hexadecimal number F3 equals Binary number 1111 0011.

Octal refers to the base-8 numbering system, which uses just eight unique symbols (0 to 7). Programmers often use Octal format because it is relatively easy for people to read and can easily be translated into binary format: each Octal digit represents 3 binary digits. E.g. Octal number 73 equals to Binary number 111 011.

Decimal refers to numbers in base 10, which is the numbering system we use most in everyday life. It's not as easy as Hexadecimal and Octal to converter Decimal to Binary number, but it is easier for us to understand Decimal.

ASCII (American Standard Code for Information Interchange) is a character encoding based on the English alphabet. ASCII codes (both readable and unreadable) are widely used in communications, such as Modem communications. Letters A to Z and numbers 0 to 9 are readable ASCII codes. Some ASCII codes are unreadable, such as the control codes: XON and XOFF, which are used in Software flow control.

Checksum

Many serial protocols use checksum (additional bytes added at the end of the data string) to check the data integrity, as errors might occur during data transmission.

There are many types of checksum, from the simplest uses of it in Modula or BCC to sophisticated CRC calculation. Using Modula as an example, we learn that before data transmission, the sender adds all command bytes together then mod it by 255 (decimal) to get an additional byte. This is to be added at the end of the command string. When the receiver receives the command string, it will first check the added byte to see whether data

remain unchanged or not. If that is the case, it will accept the data, and if not, it will ask the sender to resend the data.

Examples of protocol commands

A protocol command is a data string sent from one serial device (e.g. a Computer) to another (i.e. a Modem). Here are some examples:

ASCII command example: ATI1<CR><LF> to query Modem manufacturer's information. (Note: <CR><LF> are the control codes: Carriage Return and Line Feed)

Convert the command string above to Hexadecimal and it becomes:
41 54 49 31 0D 0A

Convert the command string above to Decimal and it becomes:
065 084 073 049 013 010

Convert the command string above to Octal and it becomes:
101 124 111 061 015 012

Convert the command string above to Binary and it becomes:
01000001 01010100 01001001 00110001 00001101 00001010

Step 3: Start controlling your RS-232 devices by using 232Analyzer

232Analyzer is an Advanced Serial Port (protocol) Analyzer software, which allows you to control/debug, monitor/sniff serial devices (RS-232/RS-485/RS-422/TTL) right from your PC.

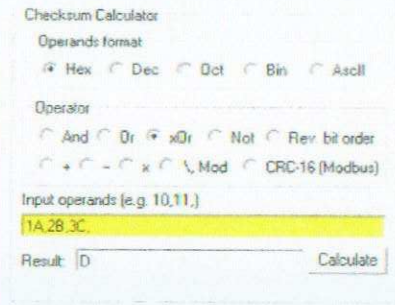
232Analyzer is a shareware, the FREE version has some limitation but is more than enough to test and control your serial devices. Click here to download a FREE copy.

Checksum calculation

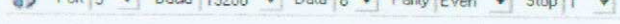
232Analyzer comes with a Checksum calculator, which allows you to calculate the complicated checksum byte in seconds, here is an example:

Suppose that you are controlling a projector, and the projector protocol uses xOR to get the additional checksum byte, the command string to turn ON the projector is: "1A 2B 3C" plus the Checksum byte. Use the following procedures to calculate the Checksum byte:

1. Select Hex as an operands format
2. Select **xOr** as an operator
3. Key in the command string and append a comma (,) after each byte of command code: e.g. 1A,2B,3C,
4. Click on the "Calculate" button and you will get the result of 0D (0 is omitted)



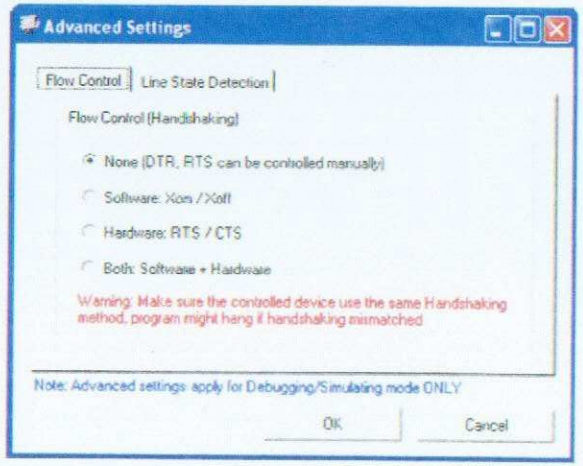
Select COM port and Setup communication formats



From the toolbar (as shown above), you can choose the COM port that is connected to the projector (i.e. Port 5), the Baud rate (i.e. 19200 bps), the Data bit (i.e. 8), the Parity (i.e. Even) and the Stop bit (i.e. 1).

Note: After you have set up the correct communication formats (they must match with the projector's COM port settings), click on the "Connect" button on the left to activate the COM port.

Setup Flow control



You can set up the flow control from the window above. It could be either Software (XON/XOFF), Hardware (RTS/CTS), Both (Software + Hardware), or None.

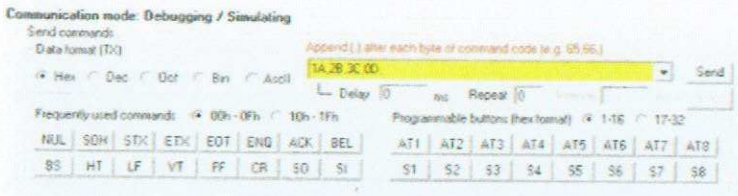
Control your RS-232 devices

1) Control / Monitor Line States

232Analyzer allows you to control / monitor line states of your COM ports.

1. Line states of RTS and DTR will be toggled when the respective LED is clicked, you can use a voltage-meter to verify the changes, you should get +6V to +15V when the line state is ON, and -6V to -15V when the line state is OFF.
2. Other line states can be monitored through the Virtual LEDs, such as RX, TX, DSR, CTS, DCD and RI.

2) Send / Receive commands



Use the above example to control a projector (turn ON the projector), key in the complete command string "1A,2B,3C,0D," into the Send_Command_Pane as shown above (note: You need to add a "," sign after each command code), and then click on the "Send" button...

Congratulations! You just controlled a RS-232 device by yourself!

Notes:
1) In the FREE version, Hex mode is not available. You can use Decimal format to send out the command string: "26,43,60,13,"
2) You can use any RS-232 device for testing, as long as you know the protocol commands.

LC COPYRIGHT
0 032 983 730 0

EXHIBIT 11

Certificate of Registration

Additional Certificate (17 U.S.C. 706)

This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

Maria A. Pallante

Register of Copyrights, United States of America

Registration Number
VA 1-792-212

Effective date of registration:
October 28, 2011

Title

Title of Work: COLLECTION OF COMMFRONT DATASHEETS 2008

Completion/ Publication

Year of Completion: 2008

Date of 1st Publication: October 15, 2008 **Nation of 1st Publication:** United States

Author

- **Author:** COMMFRONT COMMUNICATIONS ENTERPRISE LLC, dba COMMFRONT
  Author Created: text/poetry, compilation, 2-dimensional artwork, map/technical drawing

Work made for hire: Yes

Citizen of: Singapore

Copyright claimant

Copyright Claimant: COMMFRONT COMMUNICATIONS PTE LTD, dba COMMFRONT
50 TAGORE LANE #5-05K, ENTREPENEUR CENTRE, SG, Singapore

Transfer Statement: ASSIGNMENT

Rights and Permissions

Organization Name: COMMFRONT COMMUNICATIONS PTE. LTD.

Email: sales@commfront.com **Telephone:** +65-629-6815 6000 0000-0000

Address: 50 TAGORE LANE #5-05K, ENTREPENEUR CENTRE
SG, Singapore

Certification

Name: MARK J. INGBER, ESQ.

Date: October 25, 2011

Registration #: VA0001792212

Service Request #: 1-679974281

THE INGBER LAW FIRM
ATTN: MARK J. INGBER
181 MILLBURN AVENUE
MILLBURN, NJ 07041

EXHIBIT 12

LIBRARY OF CONGRESS

Copyright Office of the United States

WASHINGTON, D.C.

THIS IS TO CERTIFY that the attached color photocopies are a true representation of the work entitled **COLLECTION OF COMMFRONT DATASHEETS 2008** deposited in the Copyright Office with claim of copyright registered under number **VA 1-792-212**.

THIS IS TO CERTIFY FURTHER, that beginning October 1, 2006 the Office discontinued the practice of stamping incoming deposits with accession date stamps. Incoming deposits are now identified with barcode labels.

IN WITNESS WHEREOF the seal of the Office is affixed hereto on February 8, 2012.

Maria A. Pallante
Register of Copyrights

By: Page Miller
Acting Supervisor
Records, Research and Certification Section
Information and Records Division

Use of this material is governed by the U.S. copyright law 17 U.S.C. 101 et seq.

RS-485/RS-422 Repeater/Converter

Model: RPT-485_422-2 CE

CommFront
Communications made easy

INTRODUCTION

The RPT-485_422-2 is a RS-485/RS-422 repeater/converter, which can be used to extend the RS-485 or RS-422 distance to up to 4000 ft (1.2km), it can also can be used to convert a two-wire RS-485 signal into a four-wire RS-422 signal, and vice versa.

This product features data direction auto-turnaround. Therefore, no flow control is required.

FEATURES

- Data direction auto-turnaround, no flow control is required.
- Plug and play (hot-pluggable, data format auto-sensing and self-adjusting).
- SMT circuit.
- Built-in terminating resistor (120Ω).
- Built-in static protection circuit (ESD).

SPECIFICATIONS

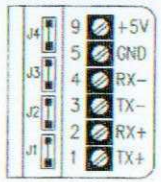
Compatibility:	EIA/TIA RS-485 and RS-422 standard
Power Source:	+5VDC (±5%) Regulated Power Supply (not included)
Current Consumption:	Under 30mA
Baud Rates:	300 to 115,200bps (auto-sensing and self-adjusting)
Distance:	Up to 4000ft (1.2km) at 19,200bps
Connector:	2x DB-9 Male Connectors; 2x Termination Boards: DB-9 Female and a 6-Way Terminal Block
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	0.63 x 1.3 x 4.6 in (16 x 32 x 118 mm) (with termination boards)
Weight:	2.0 oz (57 g) (with termination boards)
Operating Temperature:	14°F to 122°F (-10°C to 50°C)
Operating Humidity:	Up to 90% RH (no condensation)

PIN ASSIGNMENT

RS-485/RS-422 (DB-9 Male Connector / Termination Board):

Pin:	1	2	3	4	5	6	7	8	4
Jumper:	J2 (default: ON)		J3 (default: ON)			J1 (default: ON)		J4 (default: ON)	
RS-485:	A+ (J2 ON)		B- (J3 ON)		GND	(J1 ON)		J4 ON to turn ON 120Ω end-of-line terminator	
RS-422:	(J2 OFF)		(J3 OFF)		GND	(J1 OFF)			
	TX+	RX+	TX-	RX-					

Termination Board (two nos.):



- The numbers on the left indicate the pin assignment of the DB-9 male connectors.
- Connect external +5VDC power to the +5V and GND pins on one of the termination boards.
- The unit comes with a built-in 120Ω end-of-line terminator; use it (Jumper J4 ON) only when the distance is over 660ft (200m).

CONNECTIONS

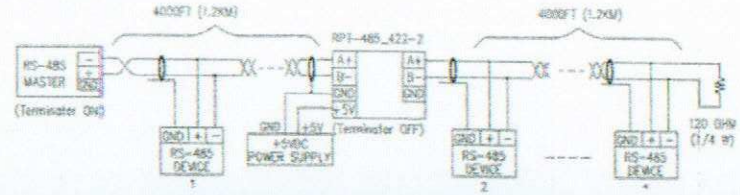


FIGURE 1: TWO-WIRE RS-485 REPEATER

(Note: The maximum number of supported nodes depends on the RS-485 master)

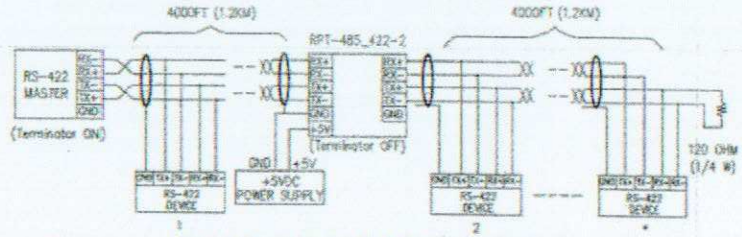


FIGURE 2: FOUR-WIRE RS-422 REPEATER

(Note: The maximum number of supported nodes depends on the RS-422 master)

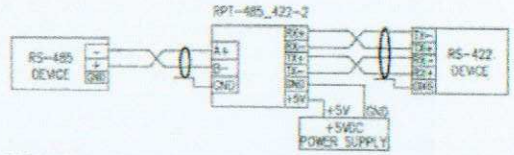


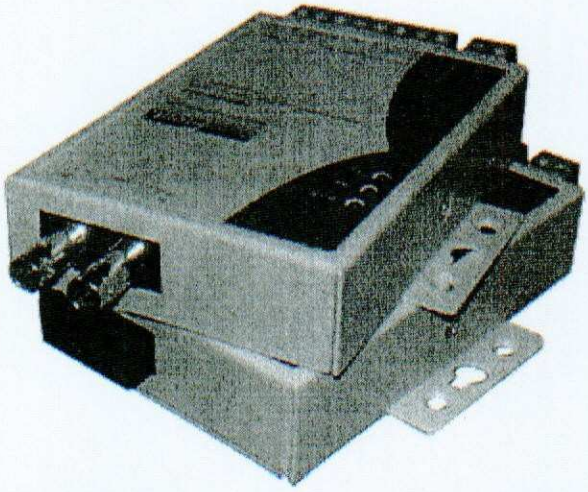
FIGURE 3: TWO-WIRE RS-485 ⇔ FOUR-WIRE RS-422

INSTALLATION NOTES

- The 120Ω end-of-line terminator adds heavy DC loading to a system; connect it only when the RS-485/RS-422's distance is over 660ft (200m).
- If RPT-485_422-2 is connected to any outdoor devices, please ensure that proper lightning protection is employed to prevent your devices from being damaged by lightning strikes.

TROUBLESHOOTING

- Perform a loopback test by using CommFront's 232Analyzer software: Remove Jumper 1 and terminate Jumper 2 and 3 on the loopback-side termination board, then send commands from the 232Analyzer software (Note: You will need a RS232 to RS422 converter if there is no RS422 port on your PC). You should receive an echo of the commands sent. By performing a simple loopback test like this, you can test both the transmitter and receiver of your repeater. This is very helpful when you are in doubt about the performance of your repeater.



RS-232/485/422 to Fiber Optic Converter

(Model: FBR-Serial-2)

CommFront®

Communications made easy

Http://www.CommFront.com

RS-232/485/422 to Fiber Optic Converter

Model: FBR-Serial-2

CommFront®
Communications made easy

■ INTRODUCTION

The FBR-Serial-2 is a multi-function serial to fiber optic converter that supports asynchronous serial communications (RS-232, RS-485, and RS-422) through fiber optic links. Besides the capability of long distance data transmission, fiber lines are inherently resistant to EMI/RFI and transient surges; therefore, they are ideal for data communications near heavy electrical equipment and other electrical or radio interference.

Depending on the fiber cable and the type of converter used, a multi-mode fiber optic converter can extend the RS-232/485/422 distance to up to 1.2 miles (2 km), while a single-mode fiber optic converter can extend the RS-232/485/422 distance to up to 12.4 miles (20 km). Standards can be mixed and matched, so RS-232 devices can be connected to RS-485/422 devices, or RS-485 (2-wire) devices can be connected to RS-422 (4-wire) devices without using a converter and isolator.

The unit supports serial data rates up to 460kbps and features data format auto-sensing and self-adjusting, and, therefore, no DIP switch or jumpers are required. When working with RS-485 signals, the CommFront's auto-turnaround feature eliminates the need for flow control.

■ FEATURES

- Transmits serial data (RS-232, RS-485 or RS-422) over long distances through fiber cables (Multi-mode: 1.2 miles or 2 km; Single-mode: 12.4 miles or 20 km).
- Supports serial data rates up to 460kbps.
- Standards can be mixed and matched (Same data type, RS-232 to RS-485/422 or RS-485 to RS-422).
- Supports up to 32 nodes of RS-485/422 devices.
- Wide temperature range (-40°F to 158°F / -40°C to 70°C).
- Single or Multi-mode, with ST or SC connectors.
- A wide range of fiber optic cables is supported.
- Plug and play (hot-pluggable; data format auto-sensing and self-adjusting).
- Data direction auto-turnaround, no flow control is required for RS-485 communications.
- Electro-Static Discharge (ESD) for up to 15kV.

■ SPECIFICATIONS

Compatibility:	EIA/TIA RS-232C, RS-485, and RS-422 standard
Power Source:	9 to 36VDC (External AC to DC power adapter included)
External AC/DC Power Adapter:	9VDC/500mA (Input: 100~240VAC 50/60Hz, US type A plug)
Maximum Power Consumption:	4 Watts
Serial Data Rates:	Up to 460kbps (auto-sensing and self-adjusting)
Wavelength:	1310nm
Usable Fiber Optic Cables:	Multi-mode: 50/125, 62.5/125μm Single-mode: 8.3/125, 8.7/125, 9/125, 10/125μm
Number of Maximum Nodes:	RS-485/422: 32 nodes
Distance (Serial Port):	RS-232: 16ft (5m); RS-485/422: 4000ft (1.2km)
Distance (Fiber Lines):	Multi-mode: 1.2 miles (2km); Single-mode: 12.4 miles (20km)
Connectors (Serial Port/Power):	RS-232/485/422: 8-way terminal block; DC Input: 2-way terminal block
Connectors (Fiber Links):	2x ST Connector or 2x SC Connector
Electro-Static Discharge (ESD):	Up to 15KV
Dimensions (H x W x D):	ST: 5.0 x 3.6 x 0.9 in (126 x 91 x 22 mm) SC: 4.5 x 3.6 x 0.9 in (115 x 91 x 22 mm)
Weight:	ST: 8.87 oz (251.4 g) / SC: 8.73 oz (245.3 g)
Operating Temperature:	-40°F to 158°F (-40°C to 70°C)
Operating Humidity:	0 to 90% Non-condensing

■ CONNECTIONS

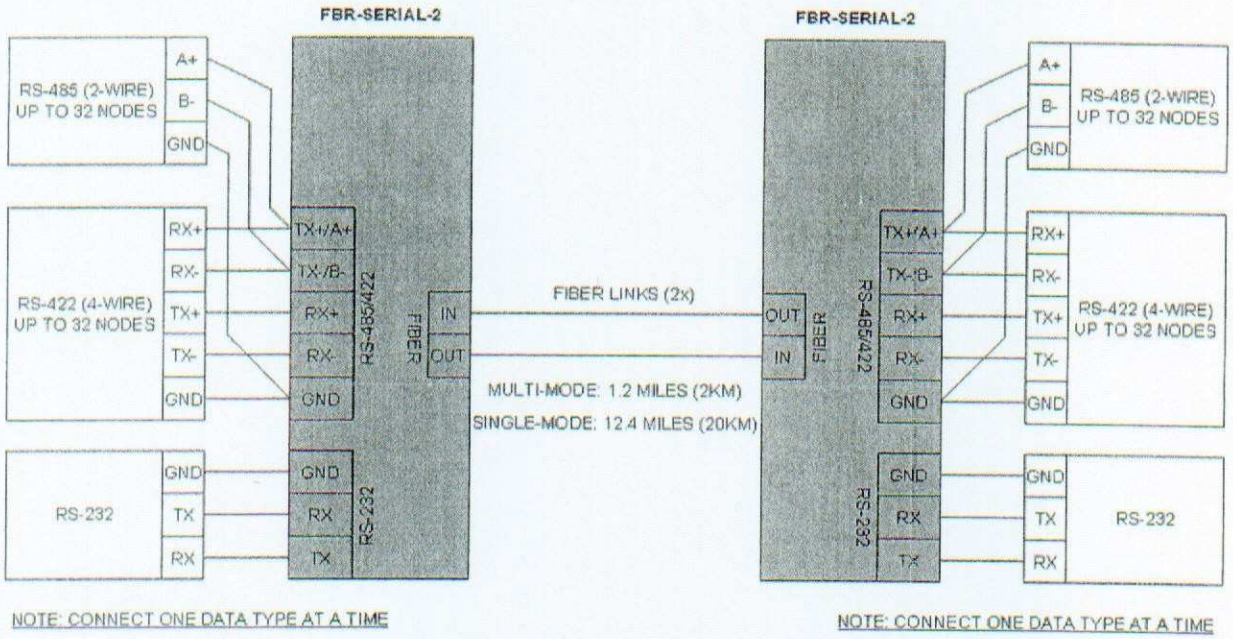


FIGURE 1: FBR-SERIAL-2 CONNECTION DIAGRAM

■ DIMENSIONS

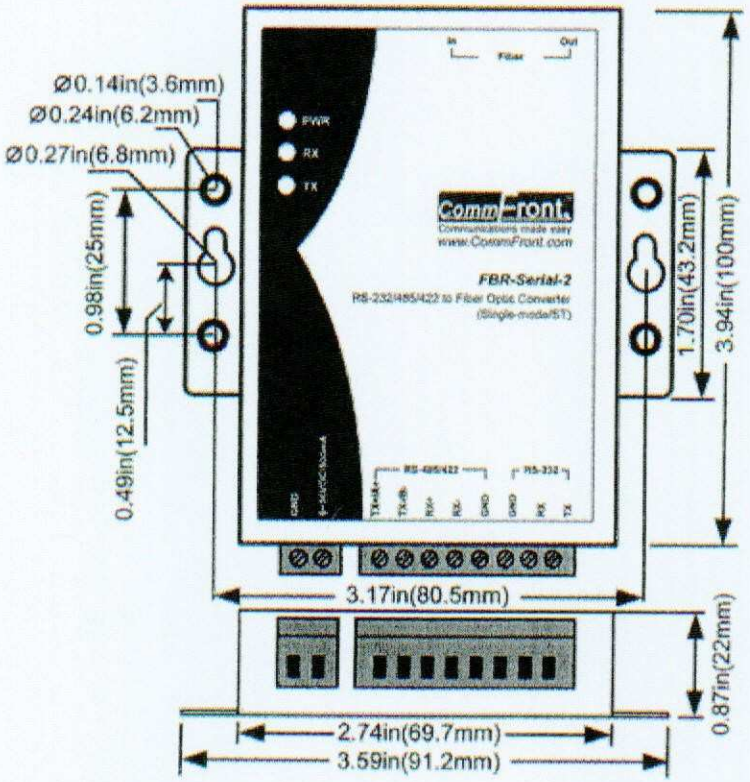
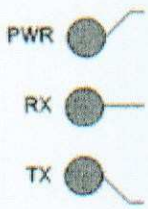


FIGURE 2: FBR-SERIAL-2 DIMENSIONS

LED INDICATIONS



PWR Indicator
Steady: Power on.
Off: Power off.

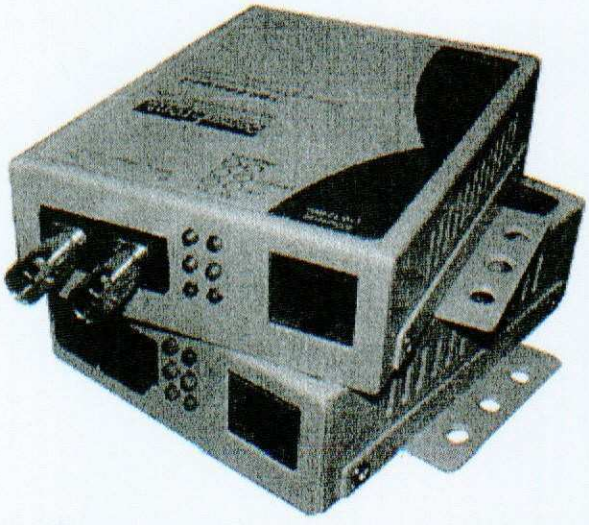
RX Indicator
Steady: Fiber link "In" connected.
Flashing: Transmitting or receiving data.

TX Indicator
Flashing: Transmitting or receiving data.

FIGURE 3: FBR-SERIAL-2 LED INDICATIONS

TROUBLESHOOTING

- Make sure the Power LED is ON and the RX & TX LEDs are OFF when there is no data communication.
- Check the connections according to the above "CONNECTIONS" diagram (Figure 1).
- Perform a loopback test by using CommFront's 232Analyzer software:
  1) Connect the "Fiber In" to "Fiber Out" by using a fiber optic pigtail cable and connect the PC's RS-232 (or RS-485/422) to FBR-Serial-2 according to the above "CONNECTIONS" diagram.
  2) Send commands from the 232Analyzer software. You should receive an echo of the commands sent. By performing a simple loopback test like this, you can test both the COM port and the fiber optic module. This is very helpful when you are in doubt about the performance of your converter.



Ethernet to Fiber Optic Converter

(Model: FBR-Ethernet-2)

CommFront®

Communications made easy

Http://www.CommFront.com

Ethernet to Fiber Optic Converter

Model: FBR-Ethernet-2

CommFront®
Communications made easy

INTRODUCTION

The FBR-Ethernet-2 is a 10/100M Ethernet to fiber optic media converter, which provides one channel for media conversion between 10/100BaseTX and 100BaseFX.

Depending on the fiber cable and the type of media converter used, a multi-mode media converter can extend the 10/100M Ethernet distance to up to 1.2 miles (2 km), while a single-mode media converter can extend the distance to up to 12.4 miles (20 km).

The FRB-Ethernet-2 is a plug and play unit featuring auto-negotiation for half or full-duplex and 10 or 100Mbps data rates, it also supports MDI (straight-through) and MDIX (crossover) cables, no DIP switch or jumper settings are required.

FEATURES

- Converts 10/100BaseTX to 100BaseFX.
- Transmits 10/100M Ethernet data over a long distance through fiber cables (Multi-mode: 1.2 miles or 2 km; Single-mode: 12.4 miles or 20 km).
- Auto-negotiation of speed and duplex mode on TX port.
- Auto-MDIX on TX port.
- Store-and-forward mechanism.
- LED indications.
- Single or Multi-mode, with ST or SC connectors.
- A wide range of fiber optic cables is supported.
- Fiber lines are inherently resistant to EMI/RFI and transient surges.
- Electro-Static Discharge (ESD) for up to 15kV.

SPECIFICATIONS

Compatibility:	IEEE802.3 10Base-T; IEEE802.3u 100Base-TX and 100Base-FX
Power Source:	5VDC (External AC to DC power adapter included)
External AC/DC Power Adapter:	5VDC/1A (Input: 100~240VAC 50/60Hz, US type A plug)
Features:	Auto-negotiation for half/full-duplex and 10/100M on TX port; Auto-MDIX on TX port
Switching Method:	Store-and-forward
Speed:	10BaseT: 10/20Mbps for half/full-duplex 100BaseT: 100/200Mbps for half/full-duplex
Maximum Power Consumption:	4 Watts
Wavelength:	1310nm
Usable Fiber Optic Cables:	Multi-mode: 50/125, 62.5/125μm Single-mode: 8.3/125, 8.7/125, 9/125, 10/125μm
Distance (Ethernet):	10BaseT: Cat. 3, 4, 5 up to 328ft (100m) 100BaseT: Cat. 5 up to 328ft (100m)
Distance (Fiber Lines):	Multi-mode: 1.2 miles (2km); Single-mode: 12.4 miles (20km)
Connectors (Ethernet/Power):	RJ45 (Female) / DC input jack (Male)
Connectors (Fiber Links):	2x ST Connector or 2x SC Connector
Electro-Static Discharge (ESD):	Up to 15KV
Dimensions (H x W x D):	ST: 4.3 x 3.4 x 1.0 in (110 x 95 x 26 mm) SC: 3.9 x 3.4 x 1.0 in (98 x 95 x 26 mm)
Weight:	ST: 8.11 oz (230.0 g) / SC: 7.82 oz (221.6 g)
Operating Temperature:	32°F to 122°F (0°C to 50°C)
Operating Humidity:	0 to 90% Non-condensing

■ CONNECTIONS

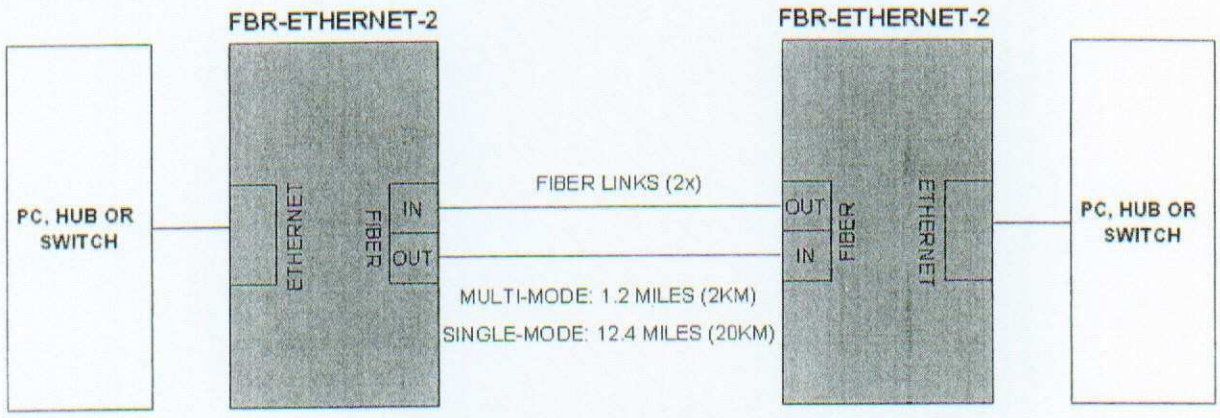
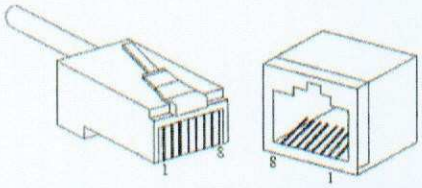


FIGURE 1: FBR-ETHERNET-2 CONNECTION DIAGRAM

■ RJ45 PIN ASSIGNMENT



Pin	Regular Port	Uplink Port
1	RX+	TX+
2	RX-	TX-
3	TX+	RX+
6	TX-	RX-
4,5,7,8	Not Connected	Not Connected

■ DIMENSIONS

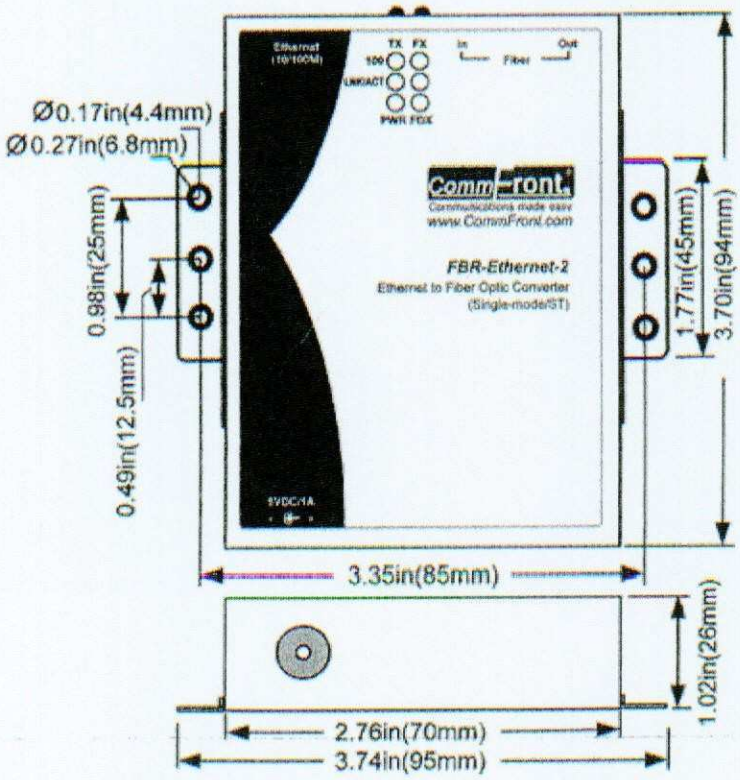
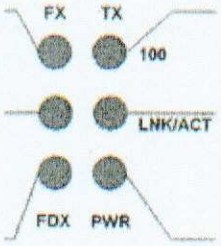


FIGURE 2: FBR-ETHERNET-2 DIMENSIONS

■ LED INDICATIONS (FRONT VIEW)



FX
Steady: Fiber optic module is functioning.
Off: Fiber optic module is faulty.

LNK/ACT (FX)
Steady: Fiber links connected.
Flashing: Transmitting or receiving data.
Off: Fiber links disconnected.

FDX
Steady: Full-duplex mode.
Flashing: Data collision detected.
Off: Half-duplex mode or network disconnected.

100
Steady: 100M network.
Off: 10M network or network disconnected.

LNK/ACT (TX)
Steady: Network connected.
Flashing: Transmitting or receiving data.
Off: Netw rk disconnected.

PWR
Steady: Power on.
Off: Power off.

FIGURE 3: FBR-ETHERNET-2 LED INDICATIONS

■ TROUBLESHOOTING

- Make sure the Power is connected and turned on.
- Check the connections according to the above "CONNECTIONS" diagram (Figure 1).
- Check the LED status and identify the possible problems by using the table below:

LED	State	Indication
PWR (Power)	Steady	Power on
	Off	Power off
100 (10/100M)	Steady	100M network
	Off	10M network or network disconnected
FX (Fiber Link Port)	Steady	Internal fiber optic module is functioning
	Off	Internal fiber optic module is faulty
LNK/ACT (TX) (TX Port Link/Activity)	Steady	Network connected
	Flashing	Transmitting or receiving data
	Off	Network disconnected
LNK/ACT (FX) (FX Port Link/Activity)	Steady	Fiber links connected
	Flashing	Transmitting or receiving data
	Off	Fiber links disconnected
FDX (Full-duplex/Collision)	Steady	Full-duplex mode
	Flashing	Data collision detected
	Off	Half-duplex mode or network disconnected

Serial Converter FAQs:
RS232/RS485/RS422/TTL/USB/FO Converters

CommFront
Communications made easy

Questions:

1. **What is DTE/DCE? How do I know my RS232 device is a DTE or a DCE?**
2. **What are Handshake Lines?**
3. **Do I need to use Handshake Lines to control the data direction?**
4. **My control software requires handshake lines to be tied together (e.g. DTR & DCR, RTS & CTS). Can I still use your converters?**
5. **What is the maximum distance for RS232?**
6. **What cables are recommended for RS485/RS422?**
7. **What is the maximum distance for RS485/RS422 and how to extend it?**
8. **Why is the 120-Ohm termination important and when to use it?**
9. **How do the converters derive power? Do I need to turn ON DTR or RTS in order to power the converters?**
10. **The converters are port-powered. Why is there a +5V sign on the converters? Can I connect external power to this terminal?**
11. **How many serial devices can I connect with the port-powered converters?**
12. **What is the maximum distance the converters can communicate with remote devices?**
13. **How do I extend the RS232 data line distance?**
14. **How do I extend the RS485/RS422 distance?**
15. **What is the maximum number of supported nodes in a RS485/RS422 network if the repeater is used?**
16. **What is Opto-Isolation? What are the benefits of using RS232 Isolators or Opto-Isolated Converters?**
17. **What is a Static Protection Circuit? Is it an Opto-Isolator?**
18. **What is the difference between 3-wire and 7-wire RS232 Isolators?**
19. **How do I use CVT-485_422-1 / CVT-485_422-3 as a RS232/RS422 converter?**
20. **How do I perform a Loopback Test for my RS232/RS485 converter?**
21. **How do I perform a Loopback Test for my RS232/RS422 converter?**
22. **How do I perform a Loopback Test for my RS232 COM port?**
23. **How do I perform a Loopback Test for my 3-wire RS232 Isolator?**
24. **How do I perform a Loopback Test for my 7-wire RS232 Isolator?**
25. **What is the maximum distance for TTL?**
26. **How do I extend the TTL distance?**
27. **How many serial devices can I connect with the RS485 to TTL converter?**
28. **How do I perform a Loopback Test for my RS232/TTL converter?**
29. **How do I perform a Loopback Test for my RS485/TTL converter?**
30. **What is USB2.0? My PC comes with USB1.1 ports only, will the product work?**
31. **How do I know the drivers are installed successfully?**
32. **Why is there a yellow icon in the Device Manager? How do I solve the problem?**
33. **Can I use both channels of the USB-232A-1 simultaneously?**
34. **Can I use the USB-Dual-RS232 product (USB-232A-1) with the Full-duplex monitoring cable (CBL-Full-1A) for the 232Analyzer software?**
35. **Can I use the USB products with your port-powered converters for RS485 / RS422 / TTL networks?**
36. **How do I change the COM port number(s) assigned to my USB-Serial adapter?**

37. **How do I change the latency timer of the USB products?**
38. **What is the output voltage of your USB to RS232 converters?**
39. **Do your USB products support custom baud rates, such as 76.8kbps?**
40. **Are the USB products Windows Vista 64-bit compatible?**
41. **Where can I download the latest drivers for CE6.0 or other OS?**
42. **How do I perform a loopback test for my USB-RS232 adapter?**
43. **What is fiber optics?**
44. **What are the advantages of fiber optic systems?**
45. **When do I need to use fiber optic systems?**
46. **What does a typical fiber optic system consist of?**
47. **What is the difference between Single-Mode (SM) and Multi-Mode (MM)?**
48. **What are the usable fiber optic cables for CommFront products?**
49. **What connector types do your products come with?**
50. **What is the wavelength for your fiber optic products?**
51. **How many cores of the fiber optic cable do I need in order to connect your fiber optic converters?**
52. **What is the maximum distance for RS232, RS485 and RS422?**
53. **What is the maximum distance for 10 or 100M Ethernet?**
54. **What are the typical fiber link distances for your products?**
55. **Can I connect an RS232 device to one side and connect RS485 or RS422 devices to the other side of the fiber link?**
56. **Are there any jumper or DIP switch settings for serial data types or baud rates for your RS232/RS485/RS422 to Fiber Optic converter?**
57. **Are there any jumper or DIP switch settings for 10/100M or regular/uplink port for your Ethernet to Fiber Optic converter?**
58. **What are the supported baud rates for your RS232/RS485/RS422 to Fiber Optic converter?**
59. **How many nodes can I connect to RS485 or RS422 loop?**

Answers

1. **What is DTE/DCE? How do I know my RS232 device is a DTE or a DCE?**
   DTE stands for Data Terminal Equipment, a PC is a DTE. DCE stands for Data Communication Equipment, a Modem is a DCE.
   DTE normally comes with a Male Connector, while DCE comes with a Female Connector, but that is not always the case. Use the guide below as a simple way to confirm:
   Measure Pin 3 and Pin 5 (DB9 Connector) with a multi-meter. If you get a voltage of -3V to -15V, it is a DTE device. If the voltage is on Pin 2, then it is a DCE device. Note: The result for the DB-25 Connector is reversed, and Ground for the DB-25 is on Pin 7.
   To learn more about RS232, check out:
   RS232 basics: Three easy steps to understand and control your RS232 devices

2. **What are Handshake Lines?**
   Handshake Lines are used to control the direction of data flow between DTE and DCE. They are:
   RTS (Request to Send) - Asserted by DTE to prepare DCE to receive data.
   CTS (Clear to Send) - RTS Acknowledgment by DCE to allow DTE to transmit.
   DTR (Data Terminal Ready) - Asserted by DTE to indicate that it is ready to be connected.
   DSR (Data Set Ready) - Indicates an active connection by DCE.
   DCD (Data Carrier Ready) - Used by modem when a connection has been established

with remote equipment.
RI (Ring Indicator) - Used by the modem to indicate a ring signal from telephone line.
To learn more about RS232, check out:
RS232 basics: Three easy steps to understand and control your RS232 devices

3. **Do I need to use Handshake Lines to control the data direction?**
This is not necessary. The converters come with the Auto-Turnaround feature, the RS-485 transceiver circuit will change the data direction automatically upon sensing a "start bit" (a logic high "Mark" to low "Space" transition) from its RS232 data transmit line (TxD).

4. **My control software requires handshake lines to be tied together (e.g. DTR & DCR, RTS & CTS). Can I still use your converters?**
Yes, to satisfy the requirements of some software, the following handshake lines are tied together in the converters.
- Pin 1 (DCD) is connected to Pin 4 (DTR) and Pin 6 (DCR).
- Pin 7 (RTS) is connected to Pin 8 (CTS).
Note: Above pin assignments are for DTE devices.

5. **What is the maximum distance for RS232?**
RS232 can go up to fifty (50) feet (about 15m).

6. **What cables are recommended for RS485/RS422?**
Screened twisted-pair cable (e.g. CAT-5e) is recommended to prevent external noises induced to the RS485/RS422 buses.

7. **What is the maximum distance for RS485/RS422 and how to extend it?**
A single RS485/RS422 loop can go up to 4000ft (1200m) by using standard copper wire (screened twisted pair such as CAT-5e). This distance (using copper wire) can be extended to another 4000ft (1200m) by using our RS485/RS422 repeater (Model: RPT-485_422-2). Note: A maximum of two repeaters can be used in series. The RS485/RS422 distance can be further extended to up to 24.8 miles (40km) by using Single-Mode Fiber Optic Cables and our Single-Mode RS232/RS485/RS422 to Fiber Optic Media converter (Model: FBR-Serial-2).

8. **Why is the 120-Ohm termination important and when to use it?**
RS485/RS422 network is normally used over a long distance and in an electrically noisy environment, noises, reflections, and data errors might occur if there is no termination on the RS485/RS422 buses. Both ends of the transmission lines should be terminated to reduce noises and reflections that can cause data errors. There are several methods of terminating data lines, and we recommend parallel termination. Instead of using pull-up or pull-down resistors, the parallel 120-Ohm end-of-line terminators provide a hassle-free and effective way of termination. However, since the Terminator will increase the load on the data circuit, we recommend to turn ON the Terminator only when the data rate is over 19.2kbps or the distance exceeds 660 feet (200m).

9. **How do the converters derive power? Do I need to turn ON DTR or RTS in order to power the converters?**
Our port-powered converters derive power from the RS232 port. The converters extract power from the TX line using a capacitor charge pump, and do NOT require any handshake signal (e.g. DTR or RTS). Also, it is not necessary for there to be continuous data to power the converter.

10. **The converters are port-powered. Why is there a +5V sign on the converters? Can I connect external power to this terminal?**
The main purpose for the +5V sign on the termination board is for port power measurement, if you doubt that the converter is not functioning, measure this pin and the Gnd with a Volt meter. If you get a signal of more than +5V, your converters are powered correctly, otherwise please check your connection or use an external 5VDC regulated power supply if the port power is insufficient. Note: If the converter is connected to is a DCE device, you need to swap Pin 2 and 3 (or use a Null-modem converter to connect between the DCE device and the converter).

11. **How many serial devices can I connect with the port-powered converters?**
You can connect a maximum of 128 serial devices (RS485 or RS422) to our converters. However, this depends a great deal on a few factors such as the RS485/RS422 devices connected to the converter, data baud rate, cable distance, etc. Please refer to the datasheets of the converters for more information.

12. **What is the maximum distance the converters can communicate with remote devices?**
Depending on the power from RS232 port, the RS232/RS485/RS422 converters can go up to 4000 feet (1200 m) for the maximum baud rate of 19200 bps. Distance can be extended by using RS485/RS422 repeaters or fiber optic converters. Fiber Optic converters can go up to 24.8 miles (40km).

13. **How do I extend the RS232 data line distance?**
The RS232 data line has a distance limitation of fifty (50) feet (about 15 m), while the RS485/RS422 can go up to 4000 feet (1200 m). It is a common practice to use the converters to extend the RS-232 data line. There are 3 ways to extend the distance of your RS232 devices: Convert to 2-wire RS485, convert to 4-wire RS422 or use our isolated RS232 repeaters. To protect your RS232 devices from surge voltages while extending the RS232 distance, we would recommend the RPT-232-3 - an optically isolated RS232 data repeater (extender) (TX, RX, and GND), which works in pairs to extend the full-duplex RS232 distance up to 1.8 miles (3 km) @ 300bps baud or 1600 feet (500m) @ 28.8kbps baud. This product features opto-isolation circuitry, which effectively protect your RS-232 devices from ground loops, transient surges, lightning and spikes.

14. **How do I extend the RS485/RS422 distance?**
A single RS485/RS422 loop can go up to 4000ft (1200m) by using standard copper wire (screened twisted pair such as CAT-5e). This distance (using copper wire) can be extended to another 4000ft (1200m) by using our RS485/RS422 repeater (Model: RPT-485_422-2). Note: A maximum of two repeaters can be used in series.
The RS485/RS422 distance can be further extended to up to 24.8 miles (40km) by using Single-Mode Fiber Optic Cables and our Single-Mode RS232/RS485/RS422 to Fiber Optic Media converter (Model: FBR-Serial-2).

15. **What is the maximum number of supported nodes in a RS485/RS422 network if the repeater is used?**
The maximum number of supported nodes in a RS485/RS422 network depends on the RS485/RS422 master, for example, if the RS485 master supports only 32 nodes, the maximum number of supported nodes in the RS485 network is 32. The use of RPT-485_422-2 only extends the RS485/RS422 distance, it will not affect the total

number of nodes that can be used in the network.

16. **What is Opto-Isolation? What are the benefits of using RS232 Isolators or Opto-Isolated Converters?**
Opto-isolation uses optical isolators to isolate two serial devices. Optical isolator is a common element used for RS232, RS485 and RS422 systems. With an optical isolator, only light passes between two serial devices, this is performed with an LED and a photosensitive transistor. There are many benefits of using opto-isolated converters, most importantly, it protects your RS232 devices from transient surges, lightning and spikes. Optical isolation also eliminates ground loop and noise problems because the ground of two connected devices are separated.

17. **What is a Static Protection Circuit? Is it an Opto-Isolator?**
The Static Protection Circuit is also called an ESD (Electro-Static Discharge). The charged capacitance of a human body enables a person to destroy integrated circuits with a single touch. Such a contact can easily occur during the installation of an interface cable. To prevent ESD damage, our converters come with the protection circuit to protect against ESD levels for up to ±15kV.
Static Protection Circuit is NOT an Opto-Isolator. To prevent your PC or serial devices from being damaged by ground loops, transient surges, lightning and spikes, opto-isolated converters (i.e. CVT-485_422-3) or isolators (i.e. CVT-232A-3 or CVT-232B-3) are required.

18. **What is the difference between 3-wire and 7-wire RS232 Isolators?**
The major difference between 3-wire and 7-wire RS232 Isolators is: 3-wire isolator optically isolates three (3) RS-232 lines (TX, RX and GND), while 7-wire isolator optically isolates seven (7) RS-232 lines (TX, RX, RTS, CTS, DTR, DSR and GND).

19. **How do I use CVT-485_422-1 / CVT-485_422-3 as a RS232/RS422 converter?**
CVT-485_422-1 and CVT-485_422-3 are dual-function converters, so they can be used to convert any standard RS232 port into a two-wire balanced half-duplex RS485 port, or a four-wire balanced full-duplex RS485/RS422 port and vice versa. This is done through the Jumper settings on the terminal block. For example: Jumper 1, 2 & 3 are ON (shorted) by default, which is used for RS232/RS485 conversion. When all three jumpers are removed (opened), it becomes a RS232/RS422 converter.

20. **How do I perform a Loopback Test for my RS232/RS485 converter?**
Performing a Loopback Test is easy with our 232Analyzer software. Simply connect two RS232/RS485 converters to your PC's COM ports (if your PC does not have enough COM ports, you may use USB to RS232 converters or cables). Run two instances of 232Analyzer software on your PC. When you send commands (i.e. "CommFront" in ASCII format) from one COM port, you should receive the same commands on the other, and vice versa.

    By performing a simple Loopback Test like this, you can test you RS485 transceiver, which is very helpful when you are in doubt about the performance of your converters or cables.

    Note: RS232/RS485 loopback requires two RS485 converters to properly perform the test.

    Click here to download a FREE copy of 232Analyzer software.

21. **How do I perform a Loopback Test for my RS232/RS422 converter?**
Performing a Loopback Test is easy with our 232Analyzer software. Simply connect TX+ and TX- to RX+ and RX- respectively and connect the RS232/RS422 converter to your PC's COM port. Run 232Analyzer software and send commands (i.e. "CommFront" in ASCII format) from the software, you should receive an echo of the commands sent. By performing a simple Loopback Test like this, you can test both the Transmitter and Receiver of your RS232/RS422 converter, which is very helpful when you are in doubt about the performance of your converters or cables.

    Click here to download a FREE copy of 232Analyzer software.

22. **How do I perform a Loopback Test for my RS232 COM port?**
Loopback Test provides an effective way to test your RS-232 COM ports or cables. By using our 232Analyzer software, you can test both your RS-232 COM ports and cables:
If you are testing your local RS232 COM port, simply connect Pin 2 to 3 of your RS232 port, then run the 232Analyzer software and send commands from the Send_Command_Pane, you should get an echo of the commands sent.
If you are communicating with a remote RS232 device, run the 232Analyzer software on both ends of the PC and turn ON/OFF the line state or send commands from one end, and you should be able to see the changes or receive the commands on the other end.
By performing a simple Loopback Test like this, you can test both the RS232 COM port and cable, which is very helpful when you have doubts about the performance of your COM ports or cables.

    Click here to download a FREE copy of 232Analyzer software.

23. **How do I perform a Loopback Test for my 3-wire RS232 Isolator?**
Performing a Loopback Test is easy with our 232Analyzer software. Simply connect the female connector end of the isolator to your PC's COM port and connect the other end (male connector) to another of your PC's COM ports with a null-modem converter (or connect pin 2 to 3, pin 3 to 2, and pin 5 to 5 between the male connector and your PC's RS232 connector).
Run two instances of 232Analyzer software on your PC. When you send commands (i.e. "CommFront" in ASCII format) from one COM port, you should receive the same commands on the other, and vice versa. By performing a simple loopback test like this, you can test both the transmitter and receiver of the isolator. This is very helpful when you are in doubt about the performance of your isolator.

    Click here to download a FREE copy of 232Analyzer software.

24. **How do I perform a Loopback Test for my 7-wire RS232 Isolator?**
Performing a Loopback Test is easy with our 232Analyzer software. Simply connect the female connector end of the isolator to your PC's COM port and connect the other end (male connector) to another of your PC's COM ports with a null-modem converter (or connect pin 2 to 3, pin 3 to 2, pin 4 to 6, pin 6 to 4, pin 7 to 8, pin 8 to 7, and pin 5 to 5 between the male connector and your PC's RS232 connector).
Run two instances of 232Analyzer software on your PC. When you send commands (i.e. "CommFront" in ASCII format) from one COM port, you should receive the same commands on the other, and vice versa. By performing a simple loopback test like this, you can test both the transmitter and receiver of the isolator. This is very helpful when

you are in doubt about the performance of your isolator.

Click here to download a FREE copy of 232Analyzer software.

25. **What is the maximum distance for TTL?**
TTL signal has a distance limitation of ten (10) feet (about 3m), while RS232 can go up to fifty (50) feet (about 15m).

26. **How do I extend the TTL distance?**
The TTL signal has a distance limitation of 10 feet (about 3 m), while the RS485 can go up to 4000 feet (1200 m). Our TTL to RS485 converter (Model: TTL-485-2) can be used to extend the 5V TTL distance to up to 4000 feet (1200 m).

27. **How many serial devices can I connect with the RS485 to TTL converter?**
You can connect a maximum of 128 serial devices on RS485 side. However, this depends a great deal on a few factors such as the RS485 devices connected to the converter, data baud rate, cable distance, etc.

28. **How do I perform a Loopback Test for my RS232/TTL converter?**
Performing a Loopback Test is easy with our 232Analyzer software. Simply connect TX (TTL Out) to RX (TTL In), and then send commands from the 232Analyzer software. You should get an echo of the commands sent. By performing a simple Loopback test like this, you can test both the Transmitter and Receiver of the RS232/TTL converter. This is very helpful when you are in doubt about the performance of your converters or cables.

Click here to download a FREE copy of 232Analyzer software.

29. **How do I perform a Loopback Test for my RS485/TTL converter?**
Performing a Loopback Test is easy with our 232Analyzer software. Simply connect two RS485/TTL converters to your PC's COM ports (if your PC does not have enough COM ports, you may use USB to RS232 converters or cables). Run two instances of 232Analyzer software on your PC. When you send commands (i.e. "CommFront" in ASCII format) from one COM port, you should receive the same commands on the other, and vice versa. By performing a simple loopback test like this, you can test both the transmitter and receiver of the converter. This is very helpful when you are in doubt about the performance of your converters or cables.

Click here to download a FREE copy of 232Analyzer software.

30. **What is USB2.0? My PC comes with USB1.1 ports only, will the product work?**
USB2.0 is a superset of 1.1 that allows much higher speeds than the older USB1.1 standard did. USB2.0 is backward compatible. A USB2.0 product (all of our USB products are USB2.0 compatible) can be used even if your PC comes only with USB1.1 ports.

31. **How do I know the drivers are installed successfully?**
Open the "Device Manager" and make sure the USB-Serial adapter(s) show under "Ports (COM & LPT)" and "Universal Serial Bus Controllers". Also, make sure there is no yellow exclamation icon over the two items.

Perform a loopback test by using our 232Analyzer software to ensure that the COM port(s) are functioning correctly.

32. **Why is there a yellow icon in the Device Manager? How do I solve the problem?**
One or more yellow icons will show in the Device Manager if the drivers are not installed properly. Possible causes: User did not disconnect the PC from the Internet while installing drivers on Vista machines, or the 2nd "Found New Hardware Wizard" window was closed before driver installation was completed.

To solve the problem, please refer to the user's manual and reinstall the drivers.

33. **Can I use both channels of the USB-232A-1 simultaneously?**
Yes, USB-232A-1 is a USB-to-dual-RS232 adapter, for which both RS232 channels can be operated simultaneously, just like having two separate COM ports on your PC.

34. **Can I use the USB-Dual-RS232 product (USB-232A-1) with the Full-duplex monitoring cable (CBL-Full-1A) for the 232Analyzer software?**
Yes, the two RS232 channels of the USB-232A-1 adapter can be operated simultaneously, which provides a perfect match for the full-duplex monitor cable (CBL-Full-1A) used in the 232Analyzer software.
Note: to improve the accuracy of the 232Analyzer's timestamps, change the latency timer to 1 msec. Please refer to "How do I change the latency timer of the USB products" for details.

35. **Can I use the USB products with your port-powered converters for RS485 / RS422 / TTL networks?**
The USB-Serial adapters do not just add RS232 ports to your PC's USB ports. By combining the product with the port-powered RS232 <=> RS485/RS422/TTL converters, it can also be used as a USB to RS485/RS422/TTL converter, or even as an opto-isolated USB to RS232/RS485/RS422 converter.

36. **How do I change the COM port number(s) assigned to my USB-Serial adapter?**
To change the COM port number(s) assigned to your USB-Serial adapter, follow these steps:
1. Open the Windows Device Manager (under "Control Panel\System\Hardware").
2. Right-click on the COM port you want to change (under "Ports (COM & LPT)").
3. Left-click on "Properties".
4. Click on the "Port Settings" tab.
5. Click on the "Advanced..." button.
6. Use the drop-down list to select the COM port number you want to use.
7. Click "OK".
8. Click "OK" again and close the Device Manager.

37. **How do I change the latency timer of the USB products?**
To change the latency timers (response time) for the USB products, follow the instructions below:
1. Open the Windows Device Manager (under "Control Panel¥System¥Hardware").
2. Right-click on the COM port you want to change (under "Ports (COM & LPT)").
3. Left-click on "Properties".
4. Click on the "Port Settings" tab.
5. Click on the "Advanced..." button.
6. Under the "BM options", select the desired latency timer from the drop-down list, it ranges from 1 to 255 msec (default: 16 msec).
Note: to improve the accuracy of the 232Analyzer's timestamps, change the latency

timer to 1 msec.

38. **What is the output voltage of your USB to RS232 converters?**
The output voltage of our USB to RS232 converters (Pin 3: TX line) is about -9VDC, which support most of the port-powered products on the market.

39. **Do your USB products support custom baud rates, such as 76.8kbps?**
Yes, our USB products support custom baud rates, such as 76.8kbps. However, some parameters need to be changed, the user manual is available here. Note: the chipset used for our products is FT232B.

40. **Are the USB products Windows Vista 64-bit compatible?**
Yes, our USB-Serial converters are Windows Vista 64-bit compatible, the products are Microsoft WHQL (Windows Hardware Quality Labs) certified.

41. **Where can I download the latest drivers for CE6.0 or other OS?**
You can download the latest drivers (chipset: FT232B) for CE6.0 or other OS from FTDI's website: http://www.ftdichip.com/Drivers/VCP.htm.

42. **How do I perform a loopback test for my USB-RS232 adapter?**
Performing a Loopback Test is easy with our 232Analyzer software (included on the C D supplied with the adapter). Simply connect pins 2 and 3 of the DB-9 connector (RX to TX) and run the program. Then send commands from the software, you should re ceive an echo of the commands sent. By performing a simple loopback test like this, you can test both the transmitter and the receiver of the adapter. This is very helpful when you are in doubt about the performance of your USB-RS232 adapter.

Click here to download a FREE copy of 232Analyzer software.

43. **What is fiber optics?**
In its simplest terms, fiber optics is a medium for carrying information from one point to another in the form of light. Unlike the copper wire mode of transmission, fiber optics is not electrical in nature.

44. **What are the advantages of fiber optic systems?**
Fiber optic systems have the following advantages over copper wire systems:
- Speed: Fiber optic systems operate at high speeds - up to gigabits.
- Bandwidth: Fiber optic systems have large carrying capacity because light sources are used for transmission.
- Distance: Signals can be transmitted much farther without needing to be regenerated or strengthened.
- Resistance: Fiber lines are inherently resistant to EMI/RFI and transient surges; therefore, they are ideal for data communications near heavy electrical equipment and other electrical or radio interference.

45. **When do I need to use fiber optic systems?**
Fiber optic systems are used for transmitting information over long distances. For example, RS-232 has a distance limitation of 16 ft (5m). Some projects require the RS-232 data to be sent over long distances, if it is transmitted within 4000 ft (1.2km), then you can probably use an RS-232 data repeater (such as CommFront's RPT-232-3). However, if the distance is over 4000 ft (1.2km), then a fiber optic system is recommended.

46. **What does a typical fiber optic system consist of?**
A typical fiber optic system consists of a transmitting device, which generates the light signal; an optical fiber cable (one or two cores for transmitting and receiving), which carries the light; and a receiver, which accepts the light signal that is being transmitted. The fiber itself is passive and does not contain any active, generative properties. For CommFront products, the transmitting and receiving devices are built within the same device. Sometimes we call it a Fiber Optic Converter or Fiber Optic Transceiver.

47. **What is the difference between Single-Mode (SM) and Multi-Mode (MM)?**
Two basic types of fiber and many different types of fiber optic cables are used today. The two types of fiber are called Single-Mode (SM) and Multi-Mode (MM). SM fiber is more expensive, but more efficient than MM fiber, SM fiber is generally used in situations in which the distances to be covered are greater.

SM fiber is a single strand of glass fiber with a diameter of 8.3 to 10 microns that has one mode of transmission. SM fiber comes with a relatively narrow diameter; the small core and single light wave virtually eliminate any distortion that could result from overlapping light pulses, providing the least signal attenuation and the highest transmission speeds of any fiber cable type. The typical distances for SM fiber are 12.4 miles (20 km) to 62 miles (100 km).

Multi-Mode fiber is a multi-strand of glass fiber with a diameter of 50 to 100 microns. Light waves are dispersed into numerous paths or modes, causing signal distortion at the receiving end for long distance cable runs. The typical distance for MM fiber is 1.2 miles (2 km).

Note: Fiber optic converter and fiber cable must be of the same type, e.g. SM fiber optic converter must be used together with SM fiber cable, while MM fiber optic converter must be used together with MM fiber cable.

48. **What are the usable fiber optic cables for CommFront products?**
Almost all Single-Mod and Multi-Mode cables are supported for CommFront fiber optic converters:
- Single-Mode: 8.3/125, 8.7/125, 9/125, 10/125μm;
- Multi-Mode: 50/125, 62.5/125μm.

49. **What connector types do your products come with?**
CommFront fiber optic converters come with the options of ST and SC connectors.
ST: A keyed bayonet type similar to a BNC connector; it can be inserted into and removed from a fiber optic converter quickly and easily.
SC: A push on/pull off connector with a plastic housing and a locking tab; it is one of the earliest and most commonly used types.

50. **What is the wavelength for your fiber optic products?**
The wavelength for CommFront's fiber optic converters is 1310nm (nanometers). Wavelength and frequency are related, 1310nm falls into the frequency range of infrared. The reason for infrared range frequency is that the attenuation of the fiber is much less there.

51. **How many cores of the fiber optic cable do I need in order to connect your fiber optic converters?**

The CommFront's fiber optic converters (FBR-Serial-2 and FBR-Ethernet-2) work in pairs (point to point); two cores of the fiber optic cable are required, one for transmitting and one for receiving.

52. **What is the maximum distance for RS232, RS485 and RS422?**
The typical maximum distance for RS232 is 50 feet (15 meters); for RS485 and RS422, it is about 4000 feet (1.2 km) by using twisted-pair copper-wire cables.

53. **What is the maximum distance for 10 or 100M Ethernet?**
The typical maximum distance for 10/100M Ethernet is about 328 feet (100 meters) by using CAT-5e twisted pair cable.

54. **What are the typical fiber link distances for your products?**
Depending on the fiber cable and the type of converter used, a Multi-Mode fiber optic link can go up to 1.2 miles (2 km), while a Single-Mode fiber optic link can go up to 12.1 miles (20 km).

55. **Can I connect an RS232 device to one side and connect RS485 or RS422 devices to the other side of the fiber link?**
Yes. Standards can be mixed and matched, so an RS232 device can be connected to one side of the fiber link, and RS485/RS422 devices to the other; or RS485 (2-wire) devices can be connected to one side of the fiber link, and RS422 (4-wire) devices to the other, without using a converter and isolator.

56. **Are there any jumper or DIP switch settings for serial data types or baud rates for your RS232/RS485/RS422 to Fiber Optic converter?**
No. There are no jumper or DIP switch settings in the unit. Simply connect the serial data into its respectively connectors and hook up the system. The FBR-Serial-2 supports data rates up to 460kbps and features data format auto-sensing and self-adjusting, and, therefore, no DIP switches or jumpers are required. When working with RS485 signals, the CommFront's auto-turnaround feature eliminates the need for flow control.

57. **Are there any jumper or DIP switch settings for 10/100M or regular/uplink port for your Ethernet to Fiber Optic converter?**
No. There are no jumper or DIP switch settings in the unit. The FRB-Ethernet-2 is a plug and play unit featuring auto-negotiation for half or full-duplex and 10 or 100Mbps data rates. It also supports MDI (straight-through) and MDIX (crossover) cables, no DIP switches or jumper settings are required.

58. **What are the supported baud rates for your RS232/RS485/RS422 to Fiber Optic converter?**
The FBR-Serial-2 supports data rates up to 460kbps. It features data format auto-sensing and self-adjusting. No DIP switches or jumpers are required. When working with RS-485 signals, the CommFront's auto-turnaround feature eliminates the need for flow control.

59. **How many nodes can I connect to RS485 or RS422 loop?**
Up to 32 RS485 or RS422 devices can be connected to the RS485/RS422 loop.

Questions:

1. **What is the 232Analyzer?**
2. **Who can benefit from this product?**
3. **What applications can this product be used for?**
4. **Where can this product be used?**
5. **Is this product easy to use?**
6. **What are the features of this product?**
7. **What are the software features?**
8. **What are the differences between free and the registered versions?**
9. **What are the differences between software and hardware analyzers?**
10. **What are the differences between 232Analyzer and HyperTerminal?**
11. **What are the license types?**
12. **What are the supported OS (Operating System)?**
13. **Can this product control/detect RS232 handshake lines?**
14. **Can this product monitor RS232 communications with direction indication?**
15. **Can this product monitor 2-wire RS485 with direction indication?**
16. **Can this product monitor 4-wire RS485/RS422 with direction indication?**
17. **Can this product monitor TTL with direction indication?**
18. **What are the recommended hardware accessories?**
19. **Does the software require physical delivery?**
20. **How accurate are the 232Analyzer timestamps?**
21. **What COM port hardware do you recommend for best timestamp accuracy in monitoring mode?**
22. **Open DB error #380?**

Answers

1. **What is the 232Analyzer?**
   The 232Analyzer is an advanced professional serial port analyzer that allows programmers, engineers, and others to control and monitor serial port activities (RS232 / RS485 / RS422 / TTL). It is also an useful tool for troubleshooting your serial converters or data networks.

2. **Who can benefit from this product?**
   Anyone who is dealing with serial communications, including:
   - Technicians
   - System integrators
   - Programmers
   - Software developers
   - Hardware engineers
   - Lab experts
   - IT specialists
   - Others

3. **What applications can this product be used for?**
   This product can be used for:
   - Troubleshooting serial converters or data networks (e.g. loopback test)
   - Serial hardware development
   - Serial device driver development
   - Serial protocol development, implementation, or reverse-engineering
   - Software testing
   - Hardware testing
   - COM port testing
   - External serial device control and monitoring
   - Others

4. **Where can this product be used?**
   This product can be used in all sorts of serial communication applications, including:
   - Building automation
   - Industrial/commercial control and automation systems
   - SCADA
   - PLC
   - A/V control
   - Security systems
   - Communication systems
   - Other systems or devices that use serial communications (RS-232/RS485/RS422/TTL)

5. **Is this product easy to use?**
   Yes, 232Analyzer is extremely easy to use. Anyone who knows how to use HyperTerminal can operate the software within seconds, without any programming knowledge.

6. **What are the features of this product?**
   232Analyzer comes with two basic features: control (debug) and monitor serial devices. The product supports data input and monitoring in Hexadecimal, Decimal, Octal, Binary and ASCII formats. It also allows you to change / monitor RS-232's line state: RTS, DTR, CTS, DSR, DCD, and RI. All data and signal flows are logged in the Communication Logging Window, which can then be saved as .txt, .doc or .rtf files for further analysis.

   232Analyzer not only allows you to control/monitor RS-232's activities, but with the right type of converters (e.g. our port-powered RS232 to RS485/RS422/TTL converters), you can also control/monitor other serial devices, such as RS485, RS422 and TTL.

7. **What are the software features?**
   232Analyzer is a professional protocol analyzer software, it is extremely easy to use yet comes with many advanced features, such as:
   - Two operating modes: Debugging/simulating and monitoring (supports both half-duplex and full-duplex monitoring)
   - Timestamps for the data captured in monitoring mode
   - Send/receive data in all formats: Hexadecimal, Decimal, Octal, Binary, and ASCII string
   - Send/receive handshake signals: RTS, DTR, CTS, DSR, DCD and RI

- COM 1 to 16
- Frequently Used Keys: 00h to 1Fh (a total of 32 numbers)
- Programmable Buttons: Send command strings, signals or data sequence with one single button (a total of 32 numbers)
- Programmable Auto-Response: Upon receiving certain data or signals, you can program automatic output data and/or signals (a total of 16 numbers)
- Programmable Macros: Send sets of data/signals and response to different types of incoming data/signals with timer and sequence (a total of 8 x 8 steps, and 8 x 8 sub-routines)
- Virtual LEDs: View the RS-232 line state and control RTS and DTR, break communication if necessary
- Data logging: All communications are logged and can be saved into .txt files for future analysis
- Checksum Calculator: AND, OR, XOR, NOT, Reverse Bit Order, +, -, x, \, MOD, CRC-16 (for Modbus), etc.
- Notation Converter: Convert data from one notation to another
- ASCII chart: All 256 ASCII codes in different formats
- Device Profile: Settings for different devices can be saved individually
- Flexible screen adjustment
- User preferences settings: Color settings, Startup Actions, Exit Actions, etc.
- Customizable colors for Background, TX, RX1 and RX2 (2nd COM port channel when using full-duplex monitoring)

8. **What are the differences between free and the registered versions?**

Software Features	FREE Version	Registered Version
Timestamps (Monitoring Mode)	No	Yes
Available Data Formats	Dec, Oct, Bin and ASCII	Hex, Dec, Oct, Bin and ASCII
Monitoring Mode	No	Yes
Programmable Buttons	No	Yes
Programmable Auto-Response	No	Yes
Programmable Macros	No	Yes
New/Save Device Profile	No	Yes
Open Device Profile	Yes	Yes
Open/Save Log File	No	Yes
User Notes	Yes	Yes
Checksum Calculator	Yes	Yes
Notation Converter	Yes	Yes
Options	Yes	Yes

9. **What are the differences between software and hardware analyzers?**

232Analyzer comes with more features than most of the hardware analyzers on the market. It is extremely easy to use and does not require any programming knowledge. Software activation can be done within minutes, so there is no product waiting time. Moreover, the software price is only a fraction of the hardware analyzer's. However, please note that the timestamp accuracy for hardware analyzers are generally better than software analyzers'.

10. **What are the differences between 232Analyzer and HyperTerminal?**
232Analyzer is an advanced protocol analyzer software, it is extremely easy to use, yet comes with many advanced features that are not available in HyperTerminal or other analyzer tools. See software features...

11. **What are the license types?**
There are four license types:
- Limited License: FREE, no time limitation.
- Single-License: To be installed on a single computer.
- Multi-License: To be installed on up to five computers within the same organization at the same physical location.
- Unlimited-Site-License: To be installed on any number of computers within the same organization at the same physical location.

12. **What are the supported OS (Operating System)?**
232Analyzer supports Windows Vista, XP, 2000 and 98. The product is a 32-bit application and it has been tested and released for Windows 32-bit editions, however, our customers are using it on Windows 7/Vista 64-bit with good success.

13. **Can this product control/detect RS232 handshake lines?**
Yes, this product allows you to change/monitor the RS232's line state: RTS, DTR, CTS, DSR, DCD, and RI.

14. **Can this product monitor RS232 communications with direction indication?**
Yes, two COM ports can be opened at the same time, and with the full-duplex RS232 monitor/control cable (CBL-Full-1A), you can monitor RS232 communications with direction indication. Learn more...

15. **Can this product monitor 2-wire RS485 with direction indication?**
Yes, by using two units of RS232/RS485 converters (e.g. CVT-485-1 or CVT-485_422-1) and a Full-Duplex monitor cable (CBL-Full-1A), the 232Analyzer software can capture not only the data flowing between the RS485 devices but also the data direction. Connect 485+ and 485- of the serial devices to A and B of the converter respectively. Switch to full-duplex monitoring mode in the 232Analyzer software. Learn more...

16. **Can this product monitor 4-wire RS485/RS422 with direction indication?**
Yes, by using two units of RS232/RS422 converters (e.g. CVT-485_422-1), the software can capture not only the data flowing between the RS422 devices but also the data direction. Connect TX+ and TX- of the serial devices to RX+ and RX- of the converters for both sides of the connections. Switch to Full-Duplex monitoring mode in the 232Analyzer software. Learn more...

17. **Can this product monitor TTL with direction indication?**
Yes, by using a Full-Duplex Monitor cable (CBL-Full-1A) and two units of RS232/TTL converters (e.g. TTL-232-1 or TTL33-232-1), the software can capture not only the data flowing between the TTL devices but also the data direction. Learn more...

18. **What are the recommended hardware accessories?**
Please refer to the table below for the recommended hardware accessories:

Direction Indication	RS-232	RS-485	RS-422	TTL 5V	TTL 3.3V
Yes	1x USB-232A-1 1x CBL-Full-1A	1x USB-232A-1 1x CBL-Full-1A 2x CVT-485-1 2x PWR-5_US-1 2x GCH-9_MM-1	1x USB-232A-1 2x CVT-485_422-1	1x USB-232A-1 1x CBL-Full-1A 2x TTL-232-1	1x USB-232A-1 1x CBL-Full-1A 2x TTL33-232-1
No	1x USB-232-1 1x CBL-Half-1	1x USB-232-1 1x CVT-485-1	-	-	-

More info on:
Serial port monitor (monitor RS232/RS485/RS422/TTL communications)
Serial port terminal (control RS232/RS485/RS422/TTL devices)

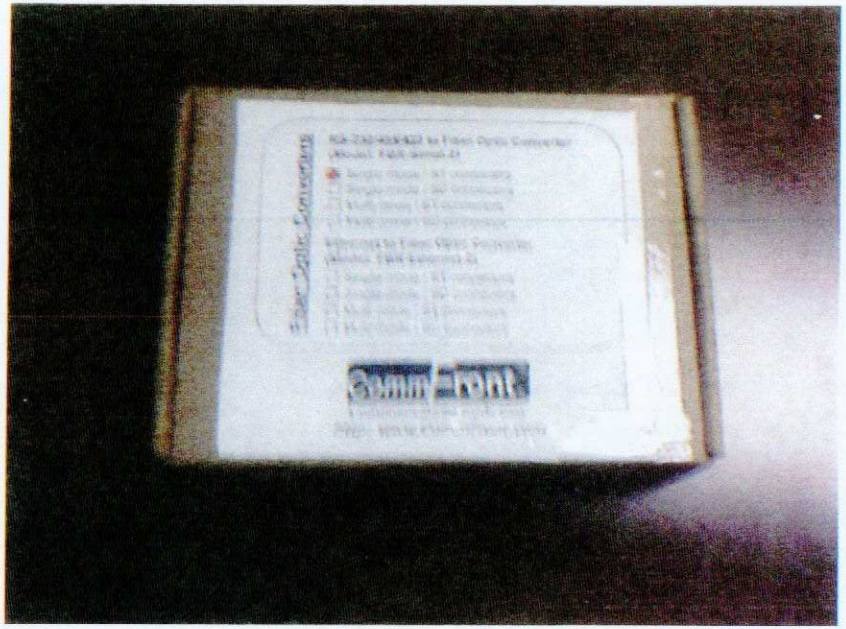
19. **Does the software require physical delivery?**
This is not necessary, simply download the free version from our website and install it on your target computer. The software code (for company licenses) or software activation instructions (for a single license) will be delivered by email.

20. **How accurate are the 232Analyzer timestamps?**
232Analyzer software is a Windows-based program, and the actual timestamp accuracy depends very much on your PC's hardware and software characteristics, such as operating system, overall PC performance and the serial hardware used. To achieve the best accuracy, we recommend the following:
1) Disable other programs or resource-consuming tasks, such as anti-virus software or other windows programs, if possible.
2) If you are using the USB-RS232 converters, you may reduce the "latency timer" to the minimum of 1ms. Please refer to the link below for details:
http://www.commfront.com/USB-Serial-Adapters-Converters/USB-Serial-Adapter-Converter-Faq.htm#10

21. **What COM port hardware do you recommend for best timestamp accuracy in monitoring mode?**
For best timestamp accuracy, we would recommend the on-board COM ports, a PCI or a PCMCIA serial port card. USB-Serial converters are also usable, however, please note that the USB devices introduce unspecified delays and latency times. Please adjust the latency timer to 1ms for best timestamp accuracy.

22. **Open DB error #380?**
If you encounter the problem of "Error 380", please uninstall the program, delete the "CommFront" folder in "C:¥Program files", and then reinstall the application.

CommFront®
Communications made easy



Fiber Optic Converters

RS-232/485/422 to Fiber Optic Converter (Model: FBR-Serial-2)

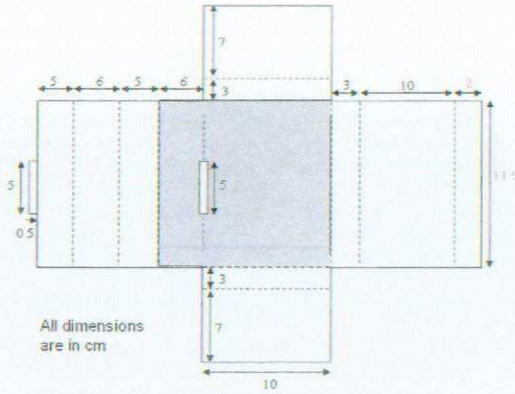
- ☐ Single-mode / ST connectors
- ☐ Single-mode / SC connectors
- ☐ Multi-mode / ST connectors
- ☐ Multi-mode / SC connectors

Ethernet to Fiber Optic Converter (Model: FBR-Ethernet-2)

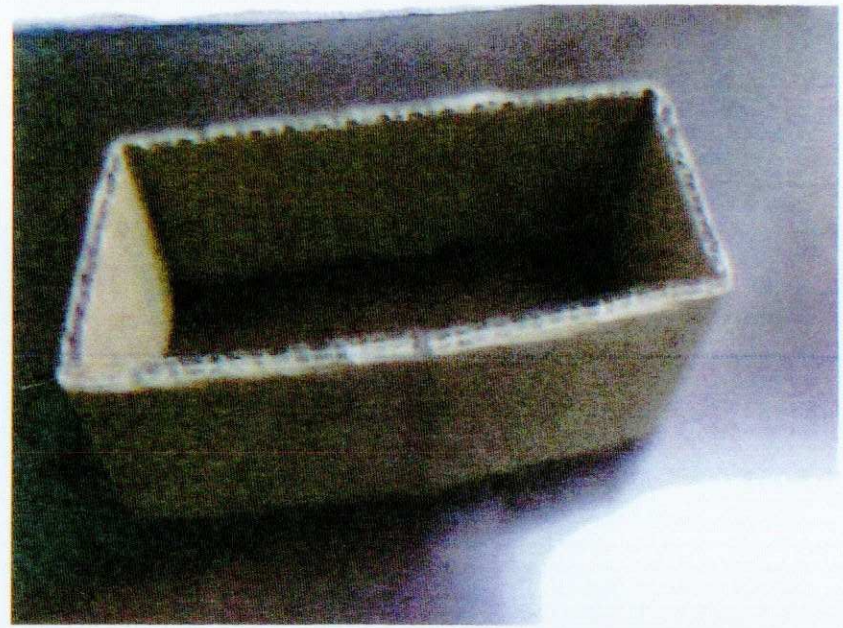
- ☐ Single-mode / ST connectors
- ☐ Single-mode / SC connectors
- ☐ Multi-mode / ST connectors
- ☐ Multi-mode / SC connectors

CommFront®
Communications made easy
http: www.CommFront.com

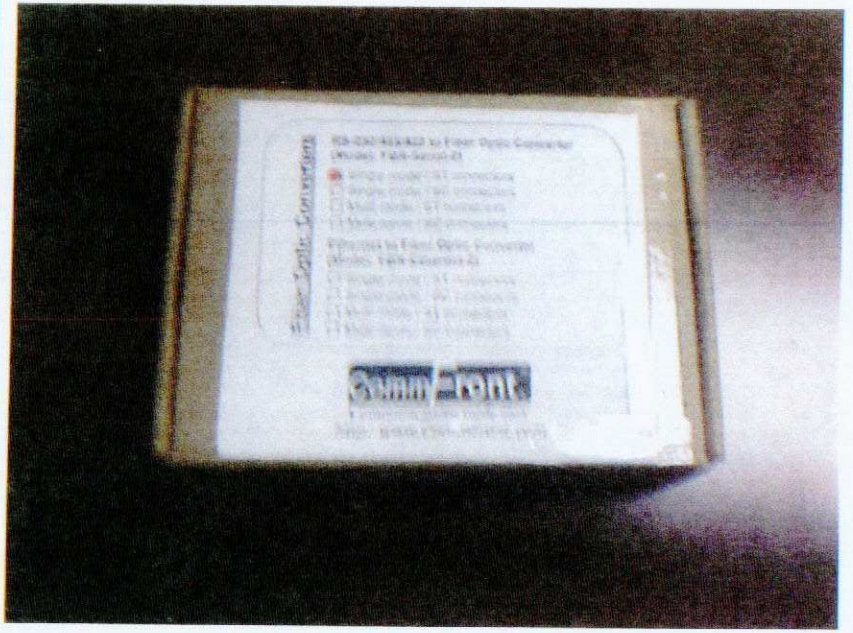
Proposed wrapping carton (All dimensions are in cm)



Fiber Optic container box inside the product box



CommFront
Communications made easy



Fiber Optic Converters

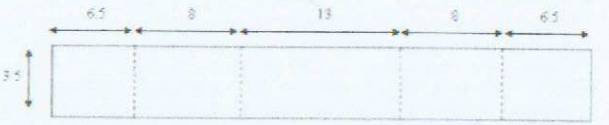
RS-232/485/422 to Fiber Optic Converter (Model: FBR-Serial-2)

- ☐ Single-mode / ST connectors
- ☐ Single-mode / SC connectors
- ☐ Multi-mode / ST connectors
- ☐ Multi-mode / SC connectors

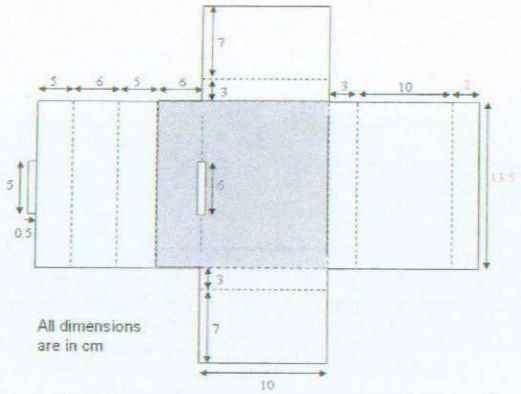
Ethernet to Fiber Optic Converter (Model: FBR-Ethernet-2)

- ☐ Single-mode / ST connectors
- ☐ Single-mode / SC connectors
- ☐ Multi-mode / ST connectors
- ☐ Multi-mode / SC connectors

CommFront®
Communications made easy
http: www.CommFront.com



Proposed wrapping carton (All dimensions are in cm)



Fiber Optic container box inside the product box

LC COPYRIGHT
0 032 983 731 2
Pub

EXHIBIT 13

Fiber Optic Media Converter / Media Converters - Windows Internet Explorer
http://74.125.47.132/search?q=cache:vDRRUDdRrqAJ:www.serial-converter.com/RS232/fiber_optic_converter.htm+site:www.serial-converter.com&cd=7&hl=en&ct=clnk&gl=us
Google
Search Sidewiki Bookmarks Check Translate AutoFill Sign In Convert Select
McAfee
Favorites Merchant Dashboard Shipping, Logistics Mana... USPS - Print Shipping Lab... Cybersource Business Cen... USPS - ZIP Code Lookup -...
Fiber Optic Media Converter / Media Converters
Page Safety Tools

This is Google's cache of http://www.serial-converters.com/RS232/fiber_optic_converter.htm. It is a snapshot of the page as it appeared on Jan 11, 2010 00:48:08 GMT. The current page could have changed in the meantime. Learn more

RS232-CONVERTERS.COM

SIMA S. ENTERPRISES
RS-232 CONVERTERS

McAfee SECURE TESTED 06-JAN

BBB ACCREDITED BUSINESS

SERIAL AND USB CONVERTER PRODUCTS

SIMA S. ENTERPRISES

1-877-647-7434

SERIAL RS232, RS485, RS422, AND TTL CONVERTERS - USB ADAPTERS
GENDER CHANGERS - FIBER OPTIC CONVERTERS - ETHERNET CONVERTERS

SerialComm Data Conversion Experts
SERIALCOMM AUTHORIZED DEALER

30 Day Satisfaction Guarantee
5 Year Product Warranty
Purchase Orders Accepted
24/7 Technical Phone Support
FREE Worldwide Shipping
Same Day EXPRESS Shipping

WORRY FREE GUARANTEE!
30 Day Money Back! • 5 Year Warranty! •
Free Shipping! • Same Day Express Shipping! •
Industry Proven Highest Quality Products!

Free Shipping · 5 Year Warranty · RoHS · CE · FC · ISO 9001 · IAF

With over 10,000 satisfied customers, Sima S. Enterprises offers the finest quality industry proven USB, RS-232, RS-485, RS-422, TTL, Ethernet, and Fiber Optic converters available. All of our products are shipped the same day ordered and come with a 30 day satisfaction guarantee and a 5 year manufacturer's warranty.

FREE WORLDWIDE SHIPPING ON ALL PRODUCTS
OPTIONAL SAME DAY EXPRESS SHIPPING UNTIL 7:30 PM EST

PRODUCT INVENTORY STATUS: ALL PRODUCTS IN STOCK

SERIAL AND ETHERNET FIBER OPTIC CONVERTER PRODUCTS

BROWSE

- Home
- RS232 to RS485 Converters
- RS232 to RS422 Converters

Give Feedback
Feedback Analytics
Internet | Protected Mode: On
100%

EXHIBIT 14

INTERNET ARCHIVE WayBackMachine BETA
http://commfront.com/CommFront-Home.htm
Go
45 captures
2 May 07 - 23 Jun 11
MAR APR JUN
2010 2011 2012
20
Close
Help

RS232 RS485 RS422 TTL USB SERIAL FIBER OPTIC CONVERTERS ADAPTERS

CommFront
Communications made easy
Think safety.
Choose certainty!

Mission Statement

CommFront's mission is to provide high-quality products in terms of safety, compatibility and reliability.

Safety & Compatibility

SGS TUV SUD

Certifying partners since day one

CommFront products are strictly certified by the unbiased reputable testing labs SGS/TUV - Nationally Recognized Testing Laboratories (NRTLs) in North America and the Notified Bodies in European Union. *Why SGS/TUV?*

100% Satisfaction

30 DAY MONEYBACK WARRANTY
5 YEAR WARRANTY
FREE Worldwide Shipping
FedEx Express Overnight / 2-Day (USA)
FedEx Express UPS DHL (Worldwide)

Wholesale

Safety: SGS/TUV certificates preferred by most companies.

Pricing: Wholesale pricing starts from as low as 50 units.

Product Selection Guide

Download the latest Product Selection Guide.

Featured Products

INDUSTRIAL RS232 TO RS485 CONVERTERS

CommFront offers a range of rugged, industrial-grade, standard (non-isolated) or opto-isolated, port or externally-powered RS232 to RS485 converters. These plug-and-play RS232 to RS485 converter products are enclosed in rugged, rustless ABS housing. They operate within a temperature range of -40°F to 185°F (-40°C to 85°C), feature 600W surge protection and 15kV static protection, and come with built-in 120 Ohm terminators for system reliability and easy installation. Whether your environment is commercial or industrial, these popular RS485 converter products provide safe, reliable, easy, and cost-effective solutions for your data conversion and device protection applications.

Non-Isolated

Model: CVT-485-1
Port-powered RS232 to RS485 Converter
(300-115.2K Baud)
Datasheet Details
$32.95 In stock Order

Model: CVT-485_422-1
Dual-function Port-powered RS232 to RS485 / RS422 Converter
(300-115.2K Baud)
Datasheet Details
$49.95 In stock Order

Model: CVT-485_422-1(25)
25-Pin Dual-function Port-powered RS232 to RS485 / RS422 Converter
(300-115.2K Baud)
Datasheet Details
$49.95 In stock Order

Opto-Isolated

Model: CVT-485-3
Port-powered Opto-Isolated RS232 to RS485 Converter
(1200-57.6K Baud)
Datasheet Details
$69.95 In stock Order

Model: CVT-485_422-3(25)
25-Pin Dual-function Port-powered Isolated RS232 to RS485/422 Converter
(1200-38.4K Baud)
Datasheet Details
$79.95 In stock Order

Model: CVT-485_422-4
Externally-powered Dual-function Opto-Isolated RS232 to RS485 / RS422 Converter
(300-115.2K Baud)
Datasheet Details
$97.95 In stock Order

INDUSTRIAL RS232 TO RS422 CONVERTERS

Legend
-1: Port-powered
-2: Externally-powered
-3: Port-powered/Isolated
-4: Externally-powered/Isolated

Examples:
CVT-485**-1** (Port-powered)
CVT-485_422**-4** (Externally-powered/Opto-Isolated)

About CommFront

[+] Milestones

CommFront is a leading manufacturer of finest-quality serial converter and software products, it has a presence in both the United States and Singapore. CommFront serial converter products are strictly certified by SGS / TUV, the most meticulous and recognized certifying labs in the industry, this makes our products worry- and hassle-free for safety and compatibility as well as for interfacing to mission-critical devices. With years of industry-proven products and proprietary system designs that have been widely applied and even copied by competitors, CommFront has gained the trust of thousands of satisfied customers worldwide, including, just to name a few:

ABB	Lockheed Martin
Allied Electronics	Microsoft
AT&T	Mitre Corp.
BAE Systems	Motorola
Cisco	Panasonic
Emerson Power	NASA
Fluke	Northrop Grumman
General Electric	Raytheon Corp.
Harris Corp.	Schneider Electric
Hewlett Packard	Seagate
Honeywell Corp.	Siemens Corp.
IBM Corp.	Sirius Satellite
Intel Corp.	Boeing
ITT Corp.	Tyco Electronics
Johnson Controls	US Air Force
L-3 Comm.	US Navy

Testimonials

"I am communicating with kWh (energy) meters that have the RS485 built in, the port-powered converter's auto-turnaround feature works really well for my application, and I don't have to change any configuration."
- Peter

"The built-in 120 Ohm terminator helps us to build a reliable data

CommFront offers a range of rugged, industrial-grade, standard (non-isolated) or opto-isolated, port or externally-powered RS232 to RS422 converters. These plug-and-play RS232 to RS485 converter products are enclosed in rugged, rustless ABS housing. They operate within a temperature range of -40°F to 185°F (-40°C to 85°C), feature 600W surge protection and 15kV static protection, and come with built-in 120 Ohm terminators for system reliability and easy installation. Whether your environment is commercial or industrial, these popular RS422 converter products provide safe, reliable, easy, and cost-effective solutions for your data conversion and device protection applications.

Non-Isolated

Model: CVT-422-1
Port-powered RS232 to RS422 Converter
(300-115.2K Baud)
Datasheet Details
$32.95 In stock Order

Model: CVT-485_422-1
Dual-function Port-powered RS232 to RS422 / RS485 Converter
(300-115.2K Baud)
Datasheet Details
$49.95 In stock Order

Model: CVT-485_422-1(25)
25-Pin Dual-function Port-powered RS232 to RS485 / RS422 Converter
(300-115.2K Baud)
Datasheet Details
$49.95 In stock Order

Opto-Isolated

Model: CVT-422-3
Port-powered Opto-Isolated RS232 to RS485 Converter
(1200-57.6K Baud)
Datasheet Details
$69.95 In stock Order

Model: CVT-485_422-3
Dual-function Port-powered Isolated RS232 to RS485 / RS422 Converter
(1200-38.4K Baud)
Datasheet Details
$79.95 In stock Order

Model: CVT-485_422-4
Externally-powered Dual-function Opto-Isolated RS232 to RS485 / RS422 Converter
(300-115.2K Baud)
Datasheet Details
$97.95 In stock Order

INDUSTRIAL RS232 ISOLATORS / RS232 REPEATERS

CommFront offers a range of rugged, industrial-grade, opto-isolated, port-powered RS232 isolators and RS232 repeater products. These plug-and-play RS232 to RS485 converter products are enclosed in rugged, rustless ABS housing. They operate within a temperature range of -40°F to 185°F (-40°C to 85°C), feature 600W surge protection and 15kV static protection. Whether your environment is commercial or industrial, these popular RS232 isolator and repeater products provide safe, reliable, easy, and cost-effective solutions for your data extension and device protection applications.

Opto-Isolated

Model: CVT-232A-3
Port-powered RS232 Opto Isolator (3-wire)
(300-38.4K Baud)
Datasheet Details
$42.95 In stock Order

Model: CVT-232B-3
Port-powered RS232 Opto Isolator (7-wire)
(300-19.2K Baud)
Datasheet Details
$59.95 In stock Order

Model: RPT-232-3
Port-powered Isolated RS232 Repeater (works in pair)
(300-28.8K Baud)
Datasheet Details
$29.95 In stock Order

comm. system, thanks for saving our valuable engineering time."
- Austin

"Your isolators have been working reliably for years without a single failure or trouble, we are satisfied with the products."
- David

"Thank you for providing the custom-made opto-isolators, the reversed mating hardware saves us a lot of time and fits our needs perfectly."
- Roger

"You have a great product. Plugged it in and it worked right out of the box.., on the first try. Thanks for saving my old serial port devices in a world that thinks newer is better. I am glad there are people like you who provide the compatibility that the industry doesn't care about anymore."
- Chester

"232Analyzer is a nice piece of software. It's checksum calculator helped me to analyze pretty tough serial communication protocol."
- Timo

"My machine requires response to the signal changes (RTS and DTR) and commands sent, this is the only software I found that is able to do so!"
- Steven

"This small RS422 / TTL converter helps us to extend to the distance that we thought we were unable to reach, a great product."
- Tim

"We need to deal with lots of TTL devices, and your unique TTL products meet most of our requirements, thanks."
- Patrick

"Thanks for the unique DIN rail and wall-mounting designs, it makes our installation so easy."
- Bob

Wish to send us your testimonials?
Click here >>>

INDUSTRIAL RS232 / RS485 / RS422 TO TTL CONVERTERS

CommFront offers a range of rugged, industrial-grade, port- or externally-powered RS232 RS485 RS422 to TTL 5V / TTL 3.3V converter products. These plug-and-play RS232 to RS485 converter products are enclosed in rugged, rustless ABS housing. They operate within a temperature range of -40°F to 185°F (-40°C to 85°C), feature 600W surge protection and 15kV static protection. Whether your environment is commercial or industrial, these popular TTL converter products provide safe, reliable, easy, and cost-effective solutions for your data conversion applications.

Non-Isolated

Model: TTL-232-1
Port-powered RS232 to TTL/CMOS 5V Converter
(300-115.2K Baud)
Datasheet Details
$32.95 In stock Order

Model: TTL33-232-1
Port-powered RS232 to TTL/CMOS 3.3V Converter
(300-115.2K Baud)
Datasheet Details
$32.95 In stock Order

Model: TTL-485-2
Externally-powered RS485 to TTL 5V Converter
(300-115.2K Baud)
Datasheet Details
$42.95 In stock Order

Model: TTL-485_422-2
Externally-powered RS422 / RS485 to TTL 5V Converter
(300-115.2K Baud)
Datasheet Details
$59.95 In stock Order

INDUSTRIAL RS485 RS422 REPEATERS / CONVERTERS / HUBS

CommFront offers a range of rugged, industrial-grade, standard (non-isolated) or opto-isolated, port or externally-powered RS485 RS422 repeater / converter and RS485 hub products. These plug-and-play RS232 to RS485 converter products are enclosed in rugged, rustless ABS housing. They operate within a temperature range of -40°F to 185°F (-40°C to 85°C), feature 600W surge protection and 15kV static protection. Whether your environment is commercial or industrial, these popular serial converter products provide safe, reliable, easy, and cost-effective solutions for your data conversion / extension and device protection applications.

Non-Isolated

Model: RPT-485_422-2
Externally-powered RS485 to RS422 Converter / Repeater
(300-115.2K Baud)
Datasheet Details
$69.95 In stock Order

Opto-Isolated

Model: RPT-485_422-4
Externally-powered Isolated RS485 to RS422 Converter / Repeater
(300-115.2K Baud)
Datasheet Details
$119.95 In stock Order

Opto-Isolated

Model: HUB-485-4
Externally-powered RS485 Hub / Splitter
(300-115.2K Baud)
Datasheet Details
$149.95 In stock Order

USB TO RS232 / RS485 / RS422 / TTL SERIAL CONVERTERS

CommFront offers a range of high-quality, commercial or industrial-grade (-40°F to 185°F / -40°C to 85°C), port-powered USB to RS232 RS485 RS422 TTL converter products. These plug-and-play USB Serial Converter products support Windows 7/Vista/XP, Mac and Linux, and come with built-in 120 Ohm terminators (RS485 / RS422) for system reliability and easy installation. Whether your environment is commercial or industrial, these popular USB serial converter products provide safe, reliable, easy, and cost-effective solutions for your data conversion and device protection applications.

Non-Isolated

Model: USB-232-1
USB to RS232 Adapter
(300-115.2K Baud)
Datasheet Details
$27.95 In stock Order

Model: USB-232A-1
USB to dual RS232 Adapter
(300-115.2K Baud)
Datasheet Details
$39.95 In stock Order

Model: USB-232-1+CVT-485-1
USB to RS485 Converter
(300-115.2K Baud)
Datasheet Details
$60.95 In stock Order

Model: USB-232-1+ CVT-485_422-1
USB to RS422 Converter
(300-115.2K Baud)
Datasheet Details
$77.95 In stock Order

Model: USB-232-1+TTL-232-1
USB to TTL 5V Converter
(300-115.2K Baud)
Datasheet Details
$60.95 In stock Order

Model: USB-232-1+ TTL33-232-1
USB to TTL 3.3V Converter
(300-115.2K Baud)
Datasheet Details
$60.95 In stock Order

Model: USB-232-1A+ 2x CVT-485-1
USB to dual RS485 Converter
(300-115.2K Baud)
Datasheet Details
$105.95 In stock Order

Model: USB-232-1A+ 2x CVT-485_422-1
USB to dual RS422 Converter
(300-115.2K Baud)
Datasheet Details
$139.95 In stock Order

Model: USB-232-1A+ 2x TTL-232-1
USB to dual TTL5V Converter
(300-115.2K Baud)
Datasheet Details
$105.95 In stock Order

Opto-Isolated

Model: USB-Serial-3
Industrial Opto-Isolated USB to RS232/RS485/RS422 Converter
(300-115.2K Baud)
Datasheet Details
$119.95 In stock Order

SERIAL RS232 / RS485 / RS422 TO FIBER OPTIC CONVERTERS

CommFront offers a range of rugged, industrial-grade RS232 / RS485 / RS422 to fiber optic media converters. These plug-and-play RS232 RS485 RS422 to fiber optic converter products are enclosed in **rugged, rustless, flame-**

retardant ABS housing (the improved version of our previous rugged steel housing). They operate within a temperature range of -40°F to 185°F (-40°C to 85°C), feature 600W surge protection and 15kV static protection, and come with the options of ST, SC and FC connectors for fiber optic links. In addition, thanks to the professional and unique casing design, the product can be mounted directly on a wall, panel or DIN rail, without a need of using any unsecured DIN-Rail or wall-mount adapters.

Multi-Mode (1.2 miles / 2km)

Model: FBR-Serial-2 (Multi-Mode/ST Connectors)
RS232/RS485/RS422 to Fiber Optic Media Converter
(300-115.2K Baud)
Datasheet Details
$154.95 Order

Model: FBR-Serial-2 (Multi-Mode/SC Connectors)
RS232/RS485/RS422 to Fiber Optic Media Converter
(300-115.2K Baud)
Datasheet Details
$154.95 In stock Order

Model: FBR-Serial-2 (Multi-Mode/FC Connectors)
RS232/RS485/RS422 to Fiber Optic Media Converter
(300-115.2K Baud)
Datasheet Details
$154.95 In stock Order

Single-Mode (24.8 miles / 40km)

Model: FBR-Serial-2 (Single-Mode/ST Connectors)
RS232/RS485/RS422 to Fiber Optic Converter
(300-115.2K Baud)
Datasheet Details
$174.95 In stock Order

Model: FBR-Serial-2 (Single-Mode/SC Connectors)
RS232/RS485/RS422 to Fiber Optic Converter
(300-115.2K Baud)
Datasheet Details
$174.95 In stock Order

Model: FBR-Serial-2 (Single-Mode/FC Connectors)
RS232/RS485/RS422 to Fiber Optic Converter
(300-115.2K Baud)
Datasheet Details
$174.95 In stock Order

10/100M ETHERNET TO FIBER OPTIC MEDIA CONVERTERS

CommFront offers a range of high-quality, economical Ethernet to fiber optic media converters. These plug-and-play Ethernet to fiber optic converter products are enclosed in **rugged, rustless, flame-retardant ABS housing** (the improved version of our previous rugged steel housing). They come with the options of ST, SC and FC connectors for fiber optic links. In addition, thanks to the professional and unique casing design, the product can be mounted directly on a wall, panel or DIN rail, without a need of using any unsecured DIN-Rail or wall-mount adapters.

Multi-Mode (1.2 miles / 2km)

Model: FBR-Ethernet-2 (Multi-Mode/ST Connectors)
10/100M Ethernet to Fiber Optic Media Converter
Datasheet Details
$74.95 In stock Order

Model: FBR-Ethernet-2 (Multi-Mode/SC Connectors)
10/100M Ethernet to Fiber Optic Media Converter
Datasheet Details
$74.95 In stock Order

Model: FBR-Ethernet-2 (Multi-Mode/FC Connectors)
10/100M Ethernet to Fiber Optic Media Converter
Datasheet Details
$74.95 In stock Order

Single-Mode (12.4 miles / 20km)

Model: FBR-Ethernet-2 (Single-Mode/ST Connectors)
10/100M Ethernet to Fiber Optic Converter
Datasheet Details
$74.95 In stock Order

Model: FBR-Ethernet-2 (Single-Mode/SC Connectors)
10/100M Ethernet to Fiber Optic Converter
Datasheet Details
$74.95 In stock Order

Model: FBR-Ethernet-2 (Single-Mode/FC Connectors)
10/100M Ethernet to Fiber Optic Converter
Datasheet Details
$74.95 In stock Order

ADVANCED RS232 SERIAL ANALYZER / SERIAL CONVERTER ACCESSORIES

CommFront offers a range of high-quality, versatile serial converter accessories for your data communication needs. And with our award-winning Serial Protocol Analyzer software, which allows you to control, monitor and analyze RS232, RS485, RS422, and TTL communications, troubleshooting your serial converters and data networks becomes an easy task!

Model: 232Analyzer
This award-winning RS232 Serial Analyzer software allows you to control, monitor and analyze RS232 / RS485 / RS422 / TTL activities. It is also an useful tool for troubleshooting your serial converters or data networks.
Download Details

License Types:
Limited-License **FREE**
Single-License **$79.95**
Multi-License **$369.95**
Site-License **$594.95**
Order

Model: CBL-Half-1
Half-duplex RS232 Monitor/Control Cable Details
$34.95 In stock Order

Model: CBL-Full-1A
Full-duplex RS232 Monitor/Control Cable Details
$44.95 In stock Order

Model: CD-232-1
232Analyzer Backup CD
$14.95 In stock Order

Model: PWR_5_US-2
5VDC Regulated Power Adapter
$14.95 In stock Order

Model: GCH_9_FF-1
DB9 Gender Changer (Female-Female)
$4.95 In stock Order

Model: GCH_9_FF-1
DB9 Gender Changer (Male-Male)
$4.95 In stock Order

Copyright © 2006-2011 CommFront Communications, LLC
Terms & Conditions | Privacy Policy | Site Map | Support | RMA Form

CommFront Communications, LLC
http://www.CommFront.com
http://www.232Analyzer.com
Sales: Sales@CommFront.com
USA: 1-800-490-8578 (Phone)
Singapore: 65-6296-8156 (Phone)

Give Feedback

EXHIBIT 15

INTERNET ARCHIVE WayBackMachine BETA
http://www.commfront.com/ Go
33 captures
19 Dec 06 - 22 Jul 11
APR JUL AUG Close
2009 5 2011 2012
Help

CommFront® Communications made easy

Communicate Safely, Simply, and Reliably

Mission Statement

CommFront's mission is to provide superior products in terms of safety, simplicity and reliability.

Safety & Compatibility

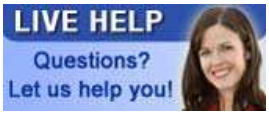
SGS TUV SOD

Certifying partners since day one

CommFront products are strictly certified by the unbiased reputable testing labs SGS/TUV - Nationally Recognized Testing Laboratories (NRTLs) in North America and the Notified Bodies in European Union. *Why SGS/TUV?*

100% Satisfaction

30 DAY MONEYBACK WARRANTY
5 YEAR WARRANTY
FREE Worldwide Shipping
FedEx Express Overnight / 2-Day (USA)
FedEx Express ups DHL (Worldwide)



COMODO AUTHENTIC & SECURE

Site secured by Comodo!
(2048-bit SSL Encryption)

Wholesale

Safety: SGS/TUV certificates

Featured Products

INDUSTRIAL RS232 TO RS485 CONVERTERS

CommFront offers a range of rugged, industrial-grade, standard (non-isolated) or opto-isolated, port or externally-powered RS232 to RS485 converters. These industrial RS232 to RS485 converter products are backed by our 30-day risk-free money-back guarantee and 5-year replacement warranty. They operate within a temperature range of -40ºF to 185ºF (-40ºC to 85ºC), feature 600W surge protection and 15kV static protection, and come with built-in 120-Ohm terminators for system reliability and easy installation. Whether your environment is commercial or industrial, these popular RS485 converters provide safe, reliable, easy, and cost-effective solutions for your data conversion and device protection applications.

Non-Isolated

Model: CVT-485-1
Port-powered RS232 to RS485 Converter
(300-115.2K Baud)
Datasheet Details
$32.95 In stock Order

Model: CVT-485_422-1
Dual-function Port-powered RS232 to RS485 / RS422 Converter
(300-115.2K Baud)
Datasheet Details
$49.95 In stock Order

Model: CVT-485_422-1(25)
25-Pin Dual-function Port-powered RS232 to RS485 / RS422 Converter
(300-115.2K Baud)
Datasheet Details
$49.95 In stock Order

Opto-Isolated

Model: CVT-485-3
Port-powered Opto-Isolated RS232 to RS485 Converter
(1200-57.6K Baud)
Datasheet Details
$69.95 In stock Order

Model: CVT-485_422-3(25)
25-Pin Dual-function Port-powered Isolated RS232 to RS485/422 Converter
(1200-38.4K Baud)
Datasheet Details
$79.95 In stock Order

Model: CVT-485_422-4
Externally-powered Dual-function Opto-Isolated RS232 to RS485 / RS422 Converter
(300-115.2K Baud)
Datasheet Details
$97.95 In stock Order

preferred by most companies.

Pricing: Wholesale pricing starts from as low as 50 units.

Product Selection Guide

Download the latest Product Selection Guide.

Legend
-1: Port-powered
-2: Externally-powered
-3: Port-powered/Isolated
-4: Externally-powered/Isolated

Examples:
CVT-485-**1** (Port-powered)
CVT-485_422-**4** (Externally-powered/Opto-Isolated)

About CommFront

[+] Milestones

CommFront is a leading manufacturer of finest-quality serial converter and software products, it has a presence in both the United States and Singapore. CommFront serial converter products are strictly certified by SGS / TUV, the most recognized, meticulous and thorough certifying labs in the industry, this makes our products worry- and hassle-free for safety and compatibility as well as for interfacing to mission-critical and expensive equipment. With years of industry-proven products and proprietary system designs that have been widely applied and even copied by competitors, CommFront has gained the trust of thousands of satisfied customers worldwide, including, just to name a few:

ABB	Lockheed Martin
Allied Electronics	Microsoft
AT&T	Mitre Corp.
BAE Systems	Motorola
Cisco	Panasonic
Emerson Power	NASA
Fluke	Northrop Grumman
General Electric	Raytheon Corp.
Harris Corp.	Schneider Electric
Hewlett Packard	Seagate
Honeywell Corp.	Siemens Corp.
IBM Corp.	Sirius Satellite
Intel Corp.	Boeing
ITT Corp.	Tyco Electronics
Johnson Controls	US Air Force
L-3 Comm.	US Navy

Testimonials

"I am communicating with kWh (energy) meters that have the

INDUSTRIAL RS232 TO RS422 CONVERTERS

CommFront offers a range of rugged, industrial-grade, standard (non-isolated) or opto-isolated, port or externally-powered RS232 to RS422 converters. These industrial RS232 to RS422 converter products are backed by our 30-day risk-free money-back guarantee and 5-year replacement warranty. They operate within a temperature range of -40ºF to 185ºF (-40ºC to 85ºC), feature 600W surge protection and 15kV static protection, and come with built-in 120-Ohm terminators for system reliability and easy installation. Whether your environment is commercial or industrial, these popular RS422 converters provide safe, reliable, easy, and cost-effective solutions for your data conversion and device protection applications.

Non-Isolated

Model: CVT-422-1
Port-powered RS232 to RS422 Converter
(300-115.2K Baud)
Datasheet Details
$32.95 In stock Order

Model: CVT-485_422-1
Dual-function Port-powered RS232 to RS422 / RS485 Converter
(300-115.2K Baud)
Datasheet Details
$49.95 In stock Order

Model: CVT-485_422-1(25)
25-Pin Dual-function Port-powered RS232 to RS485 / RS422 Converter
(300-115.2K Baud)
Datasheet Details
$49.95 In stock Order

Opto-Isolated

Model: CVT-422-3
Port-powered Opto-Isolated RS232 to RS485 Converter
(1200-57.6K Baud)
Datasheet Details
$69.95 In stock Order

Model: CVT-485_422-3
Dual-function Port-powered Isolated RS232 to RS485 / RS422 Converter
(1200-38.4K Baud)
Datasheet Details
$79.95 In stock Order

Model: CVT-485_422-4
Externally-powered Dual-function Opto-Isolated RS232 to RS485 / RS422 Converter
(300-115.2K Baud)
Datasheet Details
$97.95 In stock Order

INDUSTRIAL RS232 ISOLATORS / RS232 REPEATERS

CommFront offers a range of rugged, industrial-grade, opto-isolated, port-powered RS232 isolator and RS232 repeater products. These industrial RS232 isolator / repeater products are backed by our 30-day risk-free money-back guarantee and 5-year replacement warranty. They operate within a temperature range of -40ºF to 185ºF (-40ºC to 85ºC), and feature 600W surge protection and 15kV static protection. Whether your environment is commercial or industrial, these popular RS232 isolator and repeater products provide safe, reliable, easy, and cost-effective solutions for your data extension and device protection applications.

Opto-Isolated

Model: CVT-232A-3
Port-powered RS232 Opto Isolator (3-wire)
(300-38.4K Baud)
Datasheet Details
$37.95 In stock Order

Model: CVT-232B-3
Port-powered RS232 Opto Isolator (7-wire)
(300-19.2K Baud)
Datasheet Details
$59.95 In stock Order

Model: RPT-232-3
Port-powered Isolated RS232 Repeater (works in pair)
(300-28.8K Baud)
Datasheet Details
$29.95 In stock Order

RS485 built in, the port-powered converter's auto-turnaround feature works really well for my application, and I don't have to change any configuration."
- Peter

"The built-in 120 Ohm terminator helps us to build a reliable data comm. system, thanks for saving our valuable engineering time."
- Austin

"Your isolators have been working reliably for years without a single failure or trouble, we are satisfied with the products."
- David

"Thank you for providing the custom-made opto-isolators, the reversed mating hardware saves us a lot of time and fits our needs perfectly."
- Roger

"You have a great product. Plugged it in and it worked right out of the box.., on the first try. Thanks for saving my old serial port devices in a world that thinks newer is better. I am glad there are people like you who provide the compatibility that the industry doesn't care about anymore."
- Chester

"232Analyzer is a nice piece of software. It's checksum calculator helped me to analyze pretty tough serial communication protocol."
- Timo

"My machine requires response to the signal changes (RTS and DTR) and commands sent, this is the only software I found that is able to do so!"
- Steven

"This small RS422 / TTL converter helps us to extend to the distance that we thought we were unable to reach, a great product."
- Tim

"We need to deal with lots of TTL devices, and your unique TTL products meet most of our requirements, thanks."
- Patrick

"Thanks for the unique DIN rail and wall-mounting designs, it makes our installation so easy."
- Bob

Wish to send us your testimonials?
Click here >>>

INDUSTRIAL RS232 / RS485 / RS422 TO TTL CONVERTERS

CommFront offers a range of rugged, industrial-grade, port- or externally-powered RS232 RS485 RS422 to TTL 5V / TTL 3.3V converter products. These industrial RS232/RS485/RS422 to TTL converter products are backed by our 30-day risk-free money-back guarantee and 5-year replacement warranty. They operate within a temperature range of -40ºF to 185ºF (-40ºC to 85ºC), and feature 600W surge protection and 15kV static protection. Whether your environment is commercial or industrial, these popular TTL converter products provide safe, reliable, easy, and cost-effective solutions for your data conversion and extension applications.

Non-Isolated

Model: TTL-232-1
Port-powered RS232 to TTL/CMOS 5V Converter
(300-115.2K Baud)
Datasheet Details
$32.95 In stock Order

Model: TTL33-232-1
Port-powered RS232 to TTL/CMOS 3.3V Converter
(300-115.2K Baud)
Datasheet Details
$32.95 In stock Order

Model: TTL-485-2
Externally-powered RS485 to TTL 5V Converter
(300-115.2K Baud)
Datasheet Details
$42.95 In stock Order

Model: TTL-485_422-2
Externally-powered RS422 / RS485 to TTL 5V Converter
(300-115.2K Baud)
Datasheet Details
$59.95 In stock Order

INDUSTRIAL RS485 RS422 REPEATERS / CONVERTERS / HUBS

CommFront offers a range of rugged, industrial-grade, standard (non-isolated) or opto-isolated, port or externally-powered RS485 RS422 repeater / converter and RS485 hub products. These industrial RS485/RS422 repeater/converter products are backed by our 30-day risk-free money-back guarantee and 5-year replacement warranty. They operate within a temperature range of -40ºF to 185ºF (-40ºC to 85ºC), and feature 600W surge protection and 15kV static protection. Whether your environment is commercial or industrial, these popular serial converter products provide safe, reliable, easy, and cost-effective solutions for your data conversion/extension and device protection applications.

Non-Isolated

Model: RPT-485_422-2
Externally-powered RS485 to RS422 Converter / Repeater
(300-115.2K Baud)
Datasheet Details
$69.95 In stock Order

Opto-Isolated

Model: RPT-485_422-4
Externally-powered Isolated RS485 to RS422 Converter / Repeater
(300-115.2K Baud)
Datasheet Details
$119.95 In stock Order

Opto-Isolated

Model: HUB-485-4
Externally-powered RS485 Hub / Splitter
(300-115.2K Baud)
Datasheet Details
$149.95 In stock Order

USB TO RS232 / RS485 / RS422 / TTL SERIAL CONVERTERS

CommFront offers a range of high-quality, commercial or industrial-grade,

port-powered USB to RS232 RS485 RS422 TTL converter products. These plug-and-play USB Serial Converter products support Windows 7/Vista/XP, Mac and Linux, and are backed by our 30-day risk-free money-back guarantee and 5-year replacement warranty. Whether your environment is commercial or industrial, these popular USB serial converter products provide safe, reliable, easy, and cost-effective solutions for your data conversion and device protection applications.

Non-Isolated

Model: USB-232-1
USB to RS232 Adapter
(300-115.2K Baud)
Datasheet Details
$29.95 In stock Order

Model: USB-232A-1
USB to dual RS232 Adapter
(300-115.2K Baud)
Datasheet Details
$39.95 In stock Order

Model: USB-232-1+CVT-485-1
USB to RS485 Converter
(300-115.2K Baud)
Datasheet Details
$60.95 In stock Order

Model: USB-232-1+ CVT-485_422-1
USB to RS422 Converter
(300-115.2K Baud)
Datasheet Details
$77.95 In stock Order

Model: USB-232-1+TTL-232-1
USB to TTL 5V Converter
(300-115.2K Baud)
Datasheet Details
$60.95 In stock Order

Model: USB-232-1+ TTL33-232-1
USB to TTL 3.3V Converter
(300-115.2K Baud)
Datasheet Details
$60.95 In stock Order

Model: USB-232-1A+ 2x CVT-485-1
USB to dual RS485 Converter
(300-115.2K Baud)
Datasheet Details
$105.95 In stock Order

Model: USB-232-1A+ 2x CVT-485_422-1
USB to dual RS422 Converter
(300-115.2K Baud)
Datasheet Details
$139.95 In stock Order

Model: USB-232-1A+ 2x TTL-232-1
USB to dual TTL5V Converter
(300-115.2K Baud)
Datasheet Details
$105.95 In stock Order

Opto-Isolated

Model: USB-Serial-3
Industrial Opto-Isolated USB to RS232/RS485/RS422 Converter
(300-115.2K Baud)
Datasheet Details
$119.95 In stock Order

SERIAL RS232 / RS485 / RS422 TO FIBER OPTIC CONVERTERS

CommFront offers a range of rugged, industrial-grade RS232 / RS485 / RS422 to fiber optic media converters. These industrial RS232 RS485 RS422 to fiber optic converter products are backed by our 30-day risk-free money-back guarantee and 5-year replacement warranty. They are enclosed in **rugged, rustless ABS housings** (the improved version of our previous rugged steel housing), operate within a temperature range of -40°F to 185°F (-40°C to

85°C), feature 600W surge protection and 15kV static protection, and come with the options of ST, SC and FC connectors for fiber optic links. In addition, thanks to the professional and unique casing design, the product can be mounted directly on a wall, panel or DIN rail, without a need of using any unsecured DIN-Rail or wall-mount adapters.

Multi-Mode (1.2 miles / 2km)

Model: FBR-Serial-2 (Multi-Mode/ST Connectors)
RS232/RS485/RS422 to Fiber Optic Media Converter
(300-115.2K Baud)
Datasheet Details
$154.95 In stock Order

Model: FBR-Serial-2 (Multi-Mode/SC Connectors)
RS232/RS485/RS422 to Fiber Optic Media Converter
(300-115.2K Baud)
Datasheet Details
$154.95 In stock Order

Model: FBR-Serial-2 (Multi-Mode/FC Connectors)
RS232/RS485/RS422 to Fiber Optic Media Converter
(300-115.2K Baud)
Datasheet Details
$154.95 In stock Order

Single-Mode (24.8 miles / 40km)

Model: FBR-Serial-2 (Single-Mode/ST Connectors)
RS232/RS485/RS422 to Fiber Optic Converter
(300-115.2K Baud)
Datasheet Details
$174.95 In stock Order

Model: FBR-Serial-2 (Single-Mode/SC Connectors)
RS232/RS485/RS422 to Fiber Optic Converter
(300-115.2K Baud)
Datasheet Details
$174.95 In stock Order

Model: FBR-Serial-2 (Single-Mode/FC Connectors)
RS232/RS485/RS422 to Fiber Optic Converter
(300-115.2K Baud)
Datasheet Details
$174.95 In stock Order

10/100M ETHERNET TO FIBER OPTIC MEDIA CONVERTERS

CommFront offers a range of high-quality, economical Ethernet to fiber optic media converters. These economical Ethernet to fiber optic converter products are are backed by our 30-day risk-free money-back guarantee and 5-year replacement warranty. They are enclosed in **rugged, rustless ABS housings** (the improved version of our previous rugged steel housing), and come with the options of ST, SC and FC connectors for fiber optic links. In addition, thanks to the professional and unique casing design, the product can be mounted directly on a wall, panel or DIN rail, without a need of using any unsecured DIN-Rail or wall-mount adapters.

Multi-Mode (1.2 miles / 2km)

Model: FBR-Ethernet-2 (Multi-Mode/ST Connectors)
10/100M Ethernet to Fiber Optic Media Converter
Datasheet Details
$74.95 In stock Order

Model: FBR-Ethernet-2 (Multi-Mode/SC Connectors)
10/100M Ethernet to Fiber Optic Media Converter
Datasheet Details
$74.95 In stock Order

Model: FBR-Ethernet-2 (Multi-Mode/FC Connectors)
10/100M Ethernet to Fiber Optic Media Converter
Datasheet Details
$74.95 In stock Order

Single-Mode (12.4 miles / 20km)

Model: FBR-Ethernet-2

Model: FBR-Ethernet-2

Model: FBR-Ethernet-2

(Single-Mode/ST Connectors)
10/100M Ethernet to Fiber Optic Converter
Datasheet Details
$94.95 In stock Order

(Single-Mode/SC Connectors)
10/100M Ethernet to Fiber Optic Converter
Datasheet Details
$94.95 In stock Order

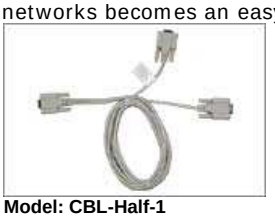
(Single-Mode/FC Connectors)
10/100M Ethernet to Fiber Optic Converter
Datasheet Details
$94.95 In stock Order

ADVANCED RS232 SERIAL ANALYZER / SERIAL CONVERTER ACCESSORIES

CommFront offers a range of high-quality, versatile serial converter accessories for your data communication needs. And with our award-winning Serial Protocol Analyzer software, which allows you to control, monitor and analyze RS232, RS485, RS422, and TTL communications, troubleshooting your serial converters and data networks becomes an easy task!

Model: 232Analyzer
This award-winning RS232 Serial Analyzer software allows you to control, monitor and analyze RS232 / RS485 / RS422 / TTL activities. It is also an useful tool for troubleshooting your serial converters or data networks.
Download Details

License Types:
Limited-License **FREE**
Single-License **$79.95**
Multi-License **$369.95**
Site-License **$594.95**
Order



Model: CBL-Half-1
Half-duplex RS232 Monitor/Control Cable Details
$34.95 In stock Order

Model: CBL-Full-1A
Full-duplex RS232 Monitor/Control Cable Details
$44.95 In stock Order

Model: CD-232-1
232Analyzer Backup CD
$14.95 In stock Order

Model: PWR_5_US-2
5VDC Regulated Power Supply
$14.95 In stock Order

Model: GCH_9_FF-1
DB9 Gender Changer (Female-Female)
$4.95 In stock Order

Model: GCH_9_FF-1
DB9 Gender Changer (Male-Male)
$4.95 In stock Order

Copyright © 2006-2011 CommFront Communications, LLC
Terms & Conditions | Privacy Policy | Site Map | Support | RMA Form

CommFront Communications, LLC
http://www.CommFront.com
http://www.232Analyzer.com
Sales: Sales@CommFront.com
USA: 1-800-490-8578 (Phone)
Singapore: 65-6296-8156 (Phone)

EXHIBIT 16

INTERNET ARCHIVE Wayback Machine BETA
http://commfront.com/Product-Comparison.htm Go
6 captures
19 Aug 10 - 15 Dec 10
OCT NOV DEC Close
22
2009 2010 2011
Help

Products

RS232 to RS485 Converters

RS232 to RS422 Converters

RS232 RS485 RS422 to TTL Converters

RS232 Isolators / Isolated Converters

RS232 RS485 RS422 Repeaters

Fiber Optic Converters

USB Serial Adapters

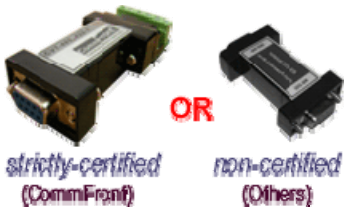
RS232 Serial Analyzer

5 YEAR hardware WARRANTY
Quality products with 30-Day Satisfaction Guarantee & 5-Year Warranty.

FREE Shipping
FREE worldwide shipping / optional same day EXPRESS shipping on all products!

PRODUCT COMPARISON

Compare products, choose certainty!



Did you know?
- CE/FCC marks are mandatory under the US, EU and Canada laws.
- CE/FCC requires complicated EMC/EMI tests which take months to complete.
- EMC/EMI tests require expensive testing equipment which is only available in reputable laboratories, such as SGS, TUV and UL.
- Non-certified products can cause a system to become unstable or even damage your expensive devices.

We welcome competition!
We welcome competition, as it motivates us to improve our products and services and to strive to do our best for our valued customers.

Unfortunately, some competitors such as Serialcomm (also named as Sima S. Enterprises) have simply bought and advertised all sorts of certificates (RoHS, CE, FCC, ISO and IAF) from a company called SEM xxx China, without going through any proper tests. These unfair business practices (fraud and misrepresentation) have misled customers and violated the related consumer and commercial laws in the United States, the European Union, Canada, and elsewhere.

Below is a list of the major product and certification differences between CommFront and some of its competitors:

Product comparison chart (CommFront vs. Competitors)

	CommFront	Competitors (e.g. Serialcomm)
Product Tests	Extremely strict EMC/EMI tests	Unknown
Certification	Strictly certified by world-class labs: SGS/TUV	SEM xxx China
Certifying Time	3 to 6 months	3 days
Industrial Grade	True industrial grade (-40°F to 185°F / -40°C to 85°C)	Semi-industrial grade (-40°F to 158°F / -40°C to 70°C or -40°F to 176°F / -40°C to 80°C)
Product Range	Complete product range: from industrial USB / RS232 / RS485 / RS422 / TTL Converters / Isolators / Repeaters / Hubs / Fiber Optic Converters to Award-winning Serial Analyzer Software	Limited product range
Reliability	Built-in 120 ohm terminators for USB to RS485 / RS42 converters and RS232 to RS485 / RS422 converters	No built-in terminators - have to acquire and terminate 120 ohm resistors through extra effort
Mounting (DIN-Rail products)	Rack or Wall / Panel Mounting with our unique designs	Wall / Panel mounting only - have to use unprofessional DIN-Rail

		adapters for rack mounting
Troubleshooting	CommFront's professional Award-winning Serial Analyzer Software can be used for trouble-shooting serial converter products or you communication links	Hyper Terminal or third-party software

A little more information about Serialcomm

Serialcomm, whose products and certificates are made from somewhere outside the United States, was created in March, 2009 by our previous distributor Sima S. Enterprises. We terminated their distributorship on June 1, 2009 due to copyright infringement issues. They have infringed upon CommFront's copyrights by using its drawings and other intellectual property on datasheets and websites - evidence for this can easily be found by examining the datasheets and websites.

Copyright © 2006-2010 CommFront Communications, LLC

CommFront Communications, LLC
http://www.CommFront.com
http://www.232Analyzer.com
Sales: Sales@CommFront.com
USA: 1-800-490-8578 (Phone)
Singapore: 65-6296-8156 (Phone)

EXHIBIT 17

INTERNET ARCHIVE WayBack Machine BETA
http://commfront.com/Product-Comparison.htm Go
6 captures
19 Aug 10 - 15 Dec 10
OCT DEC JAN Close
2009 2010 2011 Help

Products

RS232 to RS485 Converters

RS232 to RS422 Converters

RS232 RS485 RS422 to TTL Converters

RS232 Isolators / Isolated Converters

RS232 RS485 RS422 Repeaters

Fiber Optic Converters

USB Serial Adapters

RS232 Serial Analyzer

5 YEAR hardware WARRANTY
Quality products with 30-Day Satisfaction Guarantee & 5-Year Warranty.

FREE Shipping
FREE worldwide shipping / optional same day EXPRESS shipping on all products!

PRODUCT COMPARISON

Compare products, choose certainty!

We welcome competition!
We welcome competition, as it motivates us to improve our products and services and to strive to do our best for our valued customers.

Unfortunately, some competitors such as Sima S. Enterprises (serialcomm) have simply bought and advertised all sorts of certificates (RoHS, CE, FCC, ISO and IAF) from a company called SEM xxx China, without going through any proper tests. These unfair business practices (fraud and misrepresentation) have misled customers and violated the related consumer and commercial laws in the United States, the European Union, Canada, and elsewhere.

A little more information about Sima S. Enterprises and serialcomm
Serialcomm (belongs to the same person as Sima S. Enterprises'), a home-based "ISO manufacturer" (*) whose certificates and products are simply made from somewhere outside the United States, was created in March, 2009 by our previous distributor Sima S. Enterprises. We terminated their distributorship on June 1, 2009 due to copyright infringement issues. They have infringed upon CommFront's copyrights by using its drawings and other intellectual property on datasheets and websites - evidence for this can easily be found by examining the datasheets and websites.

* Serialcomm and Sima S. Enterprises' home-office address:
http://www.serialcomm.com
http://www.rs232-converters.com
1298 Evans Road
Wall Township, NJ 07719
- Sep 27, 2010

Sima S. Enterprises' core businesses are child IDs and cosmetic products:
http://www.simasenterprises.com/
http://www.simaenterprises.com/
http://www.thesafesidedvds.com/
http://www.cosmetology-video-store.com/
http://www.makeupstation.com/
http://www.dancing-videos-store.com/

Did you know?
- CE/FCC marks are mandatory under the US, EU and Canada laws.
- CE/FCC requires complicated EMC/EMI tests which take months to complete.
- EMC/EMI tests require expensive testing equipment which is only available in reputable laboratories, such as SGS, TUV and UL.
- Non-certified products can cause a system to become unstable or even damage your expensive devices.

Below is a list of the major product and certification differences between CommFront and some of its competitors:

Product comparison chart (CommFront vs. Competitors)

	CommFront	Sima S. Enterprises (serialcomm)
Product Tests	Extremely strict EMC/EMI tests	Unknown
Certifications	Strictly certified by world-class labs: SGS/TUV	SEM xxx China
Certifying Time	3 to 6 months	3 days
Industrial Grade	True industrial grade (-40°F to 185°F / -40°C to 85°C)	Semi-industrial grade (-40°F to 158°F / -40°C to 70°C or -40°F to 176°F / -40°C to 80°C)
Product Range	Complete product range: from industrial USB / RS232 / RS485 / RS422 / TTL Converters / Isolators / Repeaters / Hubs / Fiber Optic Converters to Award-winning Serial Analyzer Software	Limited product range
Reliability	Built-in 120 ohm terminators for USB to RS485 / RS42 converters and RS232 to RS485 / RS422 converters	No built-in terminators - have to acquire and terminate 120 ohm resistors through extra effort
Mounting (DIN-Rail products)	Rack or Wall / Panel Mounting with our unique designs	Wall / Panel mounting only - have to use unprofessional DIN-Rail adapters for rack mounting
Troubleshooting	CommFront's professional Award-winning Serial Analyzer Software can be used for trouble-shooting serial converter products or you communication links	Hyper Terminal or third-party software
On Market	5 Years +	1 Year +

Copyright © 2006-2010 CommFront Communications, LLC

CommFront Communications, LLC
http://www.CommFront.com
http://www.232Analyzer.com
Sales: Sales@CommFront.com
USA: 1-800-490-8578 (Phone)
Singapore: 65-6296-8156 (Phone)